



January  
February  
1992

Volume 3  
Number 3

The *First* Apple IIgs<sup>®</sup> Magazine + Disk Publication!

## Replicator

A Desktop-Based Disk  
Duplicator!

### Plus

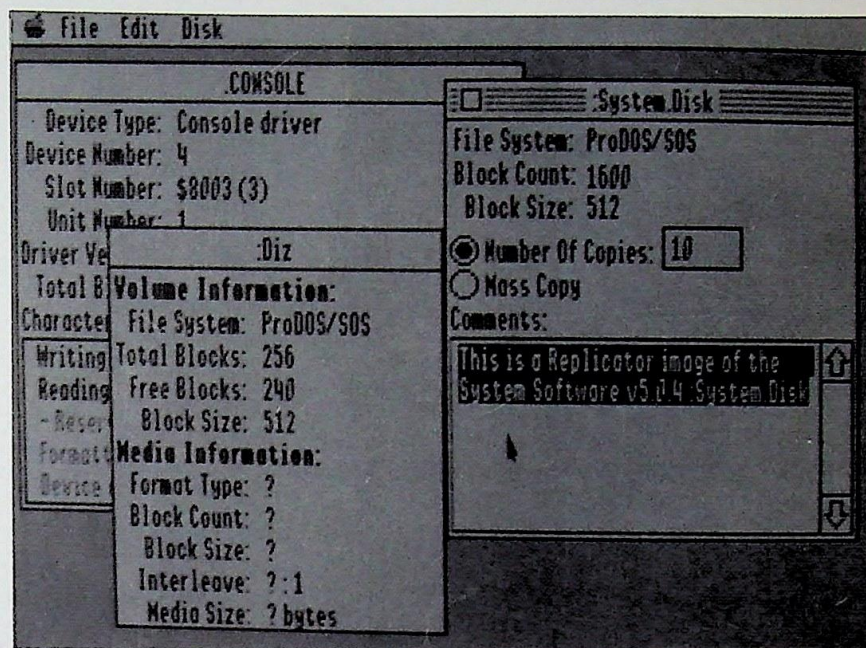
*Cool Cursor*

Replace That Boring Old  
"Watch" Cursor With An  
Animation!

*EGOed v1.4*

Find & Replace

Like You've Never Seen Before!



## Featuring

*How Printing Works*

By Matt Deatherage

*Buying & Using Macintosh Hard Disks*

By Greg Zimmerman

*Working With The Toolbox Part 6: The Resource Manager*

By Joe Wankerl

## Reviews

MacLand 105MB Hard Drive • Tulin 120MB Hard Drive

SuperConvert • Signature GS

Learn To Program In C

Astronomer GS & Three Other Shareware Titles

## Plus

Our New Phone Number!

The Latest Rumors!!

A New Contest!!!

## We Moved!

Well, we did it! We bought a house and moved. It was a real pain (Noreen and I have enough junk to fill two houses), but the size of our new office more than makes up for the trouble. As promised, we also got a new phone number. Joe and I posted it on as many online services as we could, and it's all over this magazine, but in case you missed it, the new number is (615) 843-3988. You can call us at this number from 9 am to 6 pm Eastern time, Monday through Friday. We take weekends off and we no longer have an answering machine, so don't bother calling on Saturday or Sunday.

Even though AT&T tried their best to screw it up (please don't ask, I get headaches just thinking about it!), our toll-free order number is the same as always: 1-800-662-3634. Speaking of our toll-free number, the response to it has been quite good. And, surprisingly, there has been very little abuse of our "this number is for orders only" policy. So, it looks like we'll keep it for a while. So, save yourself some money and don't forget to use it when you renew or order back issues!

## You Moved!

Apparently, we aren't the only folks that have taken advantage of the current low interest rates on home loans. *Lots* of you have been moving and, consequently, missing copies of *GS+* Magazine. What a lot of people don't realize is that Third Class bulk rate mail does *not* get forwarded when you move... it gets *destroyed!* So, lots of people neglect to send us change of address forms and magazines get sent to the wrong address and destroyed. As a result, we've been getting lots of calls from concerned subscribers wondering where their magazines are.

In the past, we have simply sent out replacements for the missing magazines. However, the problem has become so frequent, that we simply can't afford to do that anymore. (Individual issues cost about \$1.50 to send via First Class mail—with or without a disk.) So, effective

immediately, instead of replacing missing issues, we will be extending subscriptions. Missed issues will have to be purchased as back issues.

## CD-ROM?

If you have not heard the rumors by now, we are considering doing a CD-ROM based IIGS product. However, we only know of about five IIGS owners that own CD-ROM drives... and Joe is one of them. We would need to press about 1,000 CDs to make it cost effective and we would need to sell at least half of those to begin to make money on the project. In other words, we need to know if we would be wasting our time (and money) or not. So, if you have a CD-ROM drive and would like to see some IIGS-specific CD-ROM software, tell us!

## Developership

By the time you read this, we should be registered as Apple Development Associates (or something like that). In other words, we'll be registered Apple II Developers and will be able to get our hands on all sorts of neat beta stuff that we can't tell you about.

Which might be a bit of a problem. After all, we *are* a magazine—it's our job to find out about all this neat beta stuff, and the other stuff that Apple will make us sign non-disclosure agreements about, so that we can tell *you* about it. We won't be as free to do that anymore (which should make a certain someone at Apple very happy). But on the other hand, now that we are developers, Joe won't be on my case about getting all the neat beta stuff that he needs to write his software (which he seems to write quite well without any neat beta stuff).

## ORCA/Pascal

For a long time now, we've gotten lots of letters and Feedback forms that said, "More ORCA/Pascal!" If you were one of those poor souls that had to suffer through all of the C and assembly code that we've published, rejoice! Joe's "Working With The Toolbox" demo program is written in ORCA/Pascal and one of this issue's feature programs, Replicator, has almost 3,000

lines of ORCA/Pascal code for you to go hog wild over. (There's a bit of C and assembly code in there too, but don't let it bother you.) Replicator is the first really big project that Joe and I have worked on together (Joe did 98% of the programming though, I was mostly "the idea man" for this project) and I think that when you consider it was done in a week and a half (honest!) it came out quite well. Joe did an *excellent* job considering the deadline I gave him. ("Here's what I want, it's gotta be written in ORCA/Pascal, and it's gotta go in *this* issue!")

## Tech Stuff On Disk

As you may have noticed, we have more advertisements in this issue than we've ever had before! While this is good for our bottom line, it does put quite a squeeze on the space we have for actual editorial content. So, what we are going to do is we are going to begin putting as much *technical* information on the *GS+* Disk as we possibly can. Hopefully, this won't bother anyone too much. After all, if you don't get the disk, you probably don't want too much technical content in the magazine anyway. And if you want technical stuff, you can probably find your way around the disk to get at the technical articles. So you see, we really *do* read all of those Feedback forms! (However, I will admit that the content of this issue is a bit more technical than usual. Not to worry, we have more beginner and intermediate level features lined up for the future.)

## I Need A Nap

In the two and a half years I've been doing this, I think this is the first time I've ever used this column to talk about what's actually in the magazine. Usually I try to say something with redeeming social value. Ah, I have it...

Make sure you are registered to vote, and please vote in the November elections. If you don't vote, you have no business complaining about what sad shape the country is in. Protect your right to gripe, America! Vote!

Diz

GS+

# CONTENTS

## FEATURES

|                                                              |    |
|--------------------------------------------------------------|----|
| How Printing Works.....                                      | 5  |
| Working With The Toolbox - Part 6: The Resource Manager..... | 9  |
| Buying & Using Mac Hard Disks.....                           | 43 |

## PROGRAMS

|                  |    |
|------------------|----|
| Cool Cursor..... | 14 |
| Replicator.....  | 17 |
| EGOed v1.4.....  | 40 |

## REVIEWS

|                                        |    |
|----------------------------------------|----|
| MacLand 105MB Hard Drive.....          | 28 |
| Tulin Half Shell 120MB Hard Drive..... | 29 |
| SuperConvert.....                      | 30 |
| Signature GS.....                      | 31 |
| Learn to Program in C.....             | 34 |
| The Software Bargain Bin -             |    |
| Calculator v1.0 NDA.....               | 37 |
| Chronos II v2.0 NDA.....               | 37 |
| UltraBlank v1.46.....                  | 37 |
| Astronomer GS.....                     | 38 |

## DEPARTMENTS

|                                    |                    |
|------------------------------------|--------------------|
| Writer's Block.....                | inside front cover |
| Letters.....                       | 3                  |
| Glossary.....                      | 11                 |
| GS+ Back Issue Information.....    | 21                 |
| Rumors, Wishes & Blatant Lies..... | 23                 |
| How to Use the GS+ Disk.....       | 24                 |
| Icons.....                         | 26                 |
| GS+ Classifieds.....               | 39                 |
| Cool Cursor Contest.....           | 47                 |
| Warranty Disclaimer.....           | 47                 |
| Buying Ad Space in GS+.....        | 48                 |
| GS+ Ordering Information.....      | 48                 |
| Advertisers Index.....             | 49                 |

Products marked with an asterisk (\*) were review copies provided by the publisher.

# GS+

# Magazine

**January-February 1992**  
**Volume 3, Number 3**

**Publisher, Editor**  
**STEVEN W. "DIZ" DISBROW**

**Associate Editor**  
**NOREEN M. "NORY" DISBROW**

**Technical Editor**  
**JOSEF W. "GONZO" WANKERL**

**Executive Gopher**  
**ROBERT A. "BOB" RIBARIC**

**Contributing Editors**  
**DAVID "BIG DAVE" ADAMS**  
**MATT DEATHERAGE**  
**BRIAN M. WINN**  
**GREG ZIMMERMAN**

### On The Cover

A screen shot from one of this issue's feature programs, Replicator, showing a device information window (.CONSOLE), a volume information window (:Diz), and a disk window (:System.Disk).

GS+ Magazine and its companion program diskette are copyright © 1992 by EGO Systems. No part of the magazine or its companion program diskette may be reproduced without the written permission of EGO Systems. The programs on the companion program diskette are *not* public domain or shareware!

GS+ Magazine is an independent publication, not affiliated in any way with Apple Computer, Inc.

Opinions expressed in this publication are those of the individual authors and do not necessarily represent those of GS+ Magazine.

All references to either Apple or third party products are trademarked and should be so noted.

GS+ Magazine is published bimonthly by:

EGO Systems

7918 Cove Ridge Road

Hixson, TN 37343-1808

**(DO NOT SEND MAIL TO THIS ADDRESS—USE FOR UPS AND OVERNIGHT DELIVERIES ONLY!)**

Subscription rates - Magazine only:

1/2 year (3 issues) - \$8

1 year (6 issues) - \$15

Subscription rates - Magazine w/Disk:

1/2 year (3 issues) - \$20

1 year (6 issues) - \$36

Tennessee residents add 7.25% sales tax.

Add \$1.50 per issue if you want First-Class delivery.

Canadian and Mexican orders add \$1.50 per issue.

Other foreign orders add \$1.50 per issue for surface delivery or \$5 per issue for Air Mail.

Send subscription orders, ads, inquiries, and address changes to:

GS+ Subscription Services

c/o EGO Systems

P.O. Box 15366

Chattanooga, TN 37415-0366

or call (615) 843-3988

Monday-Friday 9 am-6 pm Eastern Time

GS+ Magazine can also be contacted on these online services:

America Online: send mail to GSPlusDiz

or visit our online area by using the keyword GSMAG.

Delphi: GSPlusDiz

GENie: JWankerl

If you have a submission for GS+ Magazine, send it to:

GS+ Submissions

c/o EGO Systems

P.O. Box 15366

Chattanooga, TN 37415-0366

GS+ Magazine is produced on the Apple IIGS using EGOed, GraphicWriter III, AppleWorks GS, and an Apple LaserWriter IINT.

# Letters

Dear Sirs:

I've just received my first copy of *GS+* as a former 8/16 subscriber and am very pleased with it. Are you interested in programs written in Microl Advanced BASIC and its companion assembler, Microl Macro? . . .

Also, would you be interested in a review of these products? I've been using them for over a year.

Your Writer's Guide specifies preference for submissions in Teach format, plain ASCII text, or AppleWorks GS. I normally use AppleWorks 3.0, which of course can produce an ASCII file. Do you prefer ASCII over AppleWorks?

Les Stewart  
London, Ontario, Canada

*We are always interested in new programs for the IIGS, please send us a sample of what you have and we can try to get it published. We are also interested in reviews of all IIGS-specific products. Since a large number of our readers are programmers, reviews of Microl Advanced BASIC and Microl Macro would be most welcome. (Actually, I'm working on a review of Microl Advanced BASIC myself, so you might want to concentrate on reviewing Microl Macro.) As stated in the Writer's Guide, we can read just about any format, but we don't actually have a preference when it comes to ASCII versus AppleWorks v3.0. The reason we prefer Teach and AppleWorks GS over other formats is that we can import files of these types directly into EGOed (and from there, into GraphicWriter III) without losing any of the formatting. It saves us loads of time when doing layouts!*

Diz

Dear *GS+*,

I think that you are wrong in the DataLink II EXPRESS review that you wrote in *GS+* issue V3.N2. You said that the speed of the DataLink II EXPRESS couldn't be beat. Well, I am the proud owner of the SupraModem 9600. It transmits at 9600

baud normally and can transmit at up to 38,400 baud using MNP-5 and V.42 bis. I think that your statement about send FAX capability is also false. In my opinion for the few times that I need to send FAXes, I use online services' send FAX option. (America Online has it under Send Other [in the Post Office menu].) It is just as convenient and easy as having your own send FAX modem. I must however agree that since there is a considerable price difference between the DataLink Express II and the SupraModem 9600, the DataLink Express is the good choice for anyone who wants speed but not a large bill. But the SupraModem is best for people who don't mind the money but want the fastest modem they can get. I also want to say that I am not implying in any way that your articles are poor. They are normally excellent. As is your entire magazine. I love it. I just thought I would point out a few suggestions to readers.

Evan Trent  
Norwich, Vermont

*Well Evan, by the same token, I could probably go out and buy a nice 19,200 baud modem (and spend mega-bucks) and then I'd have a faster modem than you. But what's the point? The point I was trying to get across was that most of the "other" computers out in the "Real World" have software so they can use FAX modems to send (and even receive) FAXes. It's nice to know that, somewhere out there, there is software so I can send FAXes right from my IIGS, using a DataLink II EXPRESS. Sure, I could go to America Online or walk around the corner to a local company that advertises cheap FAXing, but that costs money and I really don't find that very convenient. If I wanted to buy a FAX machine, that'd also be at least \$300 down the drain. With the DataLink II EXPRESS, at approximately the same price, I got a nice 2400 baud (theoretically capable of 9600 baud throughput) modem and software to send a FAX from my IIGS—where I do most of my work that would need to be FAXed.*

Joe

Dear Sir,

. . . I purchased my IIGS soon after it came out . . . it is a WOZ Limited Edition. When I boot up ROM version 01 is displayed on the screen and my CPU serial number is:

706 V E6531  
VL 65C816  
-04PC

Although I think I did have an upgrade done, I can't remember for sure . . . Is there an upgrade that I missed?

In addition, I was never able to get my [TransWarp GS] to operate properly . . . Quite often, when returning to my computer after an hour or so, the computer was hung up and the monitor display consisted of dozens of small blocks of color . . .

Rudy Nickman  
Bergenfield, New Jersey

*I know nothing about serial numbers, so I turned this one over to our IIGS serial number "expert," Greg Zimmerman. Here's what he had to say:*

*"Generally, CPUs with serial numbers beginning with 704 and earlier required both the ROM (to ROM 01) and VGC (Video Graphics Controller) upgrades. Those numbered 705 to 724 needed only the ROM upgrade. (I say generally because it is possible that some CPUs were modified after leaving the factory (at the dealer or something like that) and never required any upgrade after being sold.) It appears from the serial number you have (beginning with 706) that the only upgrade you would have needed is the ROM upgrade. But, if you are getting the ROM 01 startup screen when you boot, this indicates that you already have the ROM upgrade."*

*As for your TransWarp problem, it sounds to me like the CPU connector is not seated firmly in the CPU socket on the IIGS motherboard. I had similar problems*

*myself after I first bought my TransWarp. Turn off your IIGS (but don't unplug it), remove the lid, touch the power supply (to discharge any static electricity that may have built up on your clothing or in your body) and press down firmly on each end of the CPU connector so that it is seated correctly in the CPU socket. Also, you should check to be certain that the TransWarp card is not touching any other cards in the computer.*

Diz

Dear Sirs,

It was with much displeasure that we read your biased and unjustified review of our program **Talking Cloze Technique**. Please be advised that you will no longer be considered for our advertising budgets, and you will no longer be receiving any promotional copies of our programs.

Apparently, your reviewer has absolutely no background in education. The Cloze Technique is a proven method of building reading comprehension, and snide references to "missing words" demonstrate nothing so much as a pathetically inadequate grasp of educational fundamentals. How else would you have us build a comprehension program, than by asking the children to read the program and fill in a word based on the context of the story? Apparently context is something your reviewer has trouble with—we have to fit our program within the severely limited context of the Apple IIGS. We can't wave a magic wand at the machine and create eight-channel sound, three-dimensional ray-traced graphics, and a Greek chorus to whisper over your shoulder. This is reality, not fantasy-land, and the IIGS can only be taken so far.

We put *eight* completely illustrated stories on three disks. Each page of the story is animated—a fact that your reviewer either failed to notice or willfully ignored while skimming the manual. The program contains sampled speech, eight reward screens, *forty* animations, a full screen animation at the end, and what we feel are some of the best graphics available on the IIGS. It is possible that your reviewer was not able to answer enough of the questions correctly to get to any of the reward screens.

We also must protest the use of the programmer's name in your review. Each of our products is the result of a team of people working together, and to single out only the programmer for such a ridiculously harsh critique is pathetic. We work as a group, we stand as a group, and if we fall, we fall as a group. You might as well blame the man who designed the engine for the failure of the Edsel. It also seems unfair that you do not give us the name of the reviewer. Publishing a review this critical behind a magazine's facade, identifying the programmer, and hiding your own name from the light of day smacks of elderly maiden aunts whispering behind curtains in stuffy rooms filled with cats, knitting, and vicious innuendo.

In closing, we are disappointed that your magazine chooses to revile one of the last developers of Apple IIGS software. As the machine dies, apparently you have to resort to tabloid journalism to keep any semblance of a circulation going. This is sloppy, incomplete work by your reviewer, and we strongly suggest you take another look at the program. Maybe this time you could manage to run through the entire program thoroughly. Your review was entirely unprofessional.

Sincerely Yours,  
Tim Howland  
Corporate Relations  
Orange Cherry Software

*First and foremost, let me state that the omission of the reviewer's name was completely unintentional and 100% my fault. The reviewer of both Talking Cloze Technique and Talking First Words was Greg Zimmerman. Greg has been writing reviews of educational products for us for almost two years now, and I trust his opinions completely. However, due to the . . . insistent . . . nature of your letter, I have requested that Greg send the program to me so that I may personally re-review the program. If I feel that we have made a malicious mistake (your letter seems to imply that the review was done with malice of forethought—this is not the case), I will print a retraction and an update to the original review.*

*Second, we mention the programmer's name in each of our reviews simply because programmers never seem to get the credit that they are due (good or bad). However, you make a good point about mentioning the names of all the individuals that work on a program.*

*Third, Orange Cherry has never advertised with us, so the "loss" of your advertising dollars is not that big a deal. The loss of the promotional copies is not that big a deal either, we'll just have to buy them from now on.*

*Fourth, if you had actually read all of the copies of GS+ Magazine that we have sent you, you would know exactly what our position is on reviewing the offerings of "one of the last developers of Apple IIGS software." We are extremely glad that Orange Cherry is supporting the IIGS, but we have a larger responsibility to our readers to make sure that they don't waste their money on bad software—regardless of who the publisher is, how many review copies they send us, or how much they advertise with us.*

*Finally, your reference to "tabloid journalism" was truly laughable. Tabloids are usually sold on newsstands and have headlines like, "Liz and Michael In Love Nest With Chimps: Exclusive Photos!" GS+ Magazine is sold by subscription only, has very few exclusive photos and has headlines like "How Fonts Work." At no time did we go out of our way to draw attention to the fact that there was a negative review of one of your products in GS+ Magazine.*

Steven W. Disbrow  
Publisher of GS+ Magazine

If you have a question, comment, or criticism about GS+ Magazine, we want to hear it! Due to space limitations, we cannot answer every letter here in GS+ Magazine. *If you want a personal reply, please enclose a self-addressed, stamped envelope with your letter.* Please address all letters to:

GS+ Letters  
P. O. Box 15366  
Chattanooga, TN 37415-0366 GS+

In the last issue of *GS+* Magazine, we looked at how the IIGS Font Manager uses fonts to produce the text you see on your computer screen. (See "How Fonts Work," in *GS+* V3.N2.) We also discussed how font scaling works. So why should you care about all this font scaling? Why does it make any difference to you how Times 36 gets created from Times 72 if you only want to print in Times 12? It makes a difference because when you print to a QuickDraw-based printer, all kinds of font scaling goes on behind your back (and even behind the application's back). If you know what's happening, you can make it work for you, or at least not work against you. But first, let's look at how printing works so it makes a little more sense.

When a program prints from the desktop, it opens a "printing document" with the Print Manager call `PrOpenDoc`. That returns a printing `grafPort` into which the application can draw each page to be printed. (A `grafPort`, you may recall, is a QuickDraw drawing environment that defines how things get drawn. QuickDraw always draws into `grafPorts`; a window is a `grafPort` with special Window Manager extensions.) Each page is opened and closed, and then the document is closed. A final call named `PrPicFile` ends the printing process (we'll look at it in more detail shortly).

There are generically two kinds of printer drivers—printer drivers that use QuickDraw to image all the data to be printed and then transform that into printer-codes are called *QuickDraw printers*, and printer drivers that don't need QuickDraw's help aren't. (Actually, there's only one common non-QuickDraw printer, and that's the LaserWriter. Non-QuickDraw printing to the LaserWriter is usually called *PostScript printing* because it uses PostScript, the page description language from Adobe Systems that's built into every LaserWriter. That's also why the LaserWriter driver works with non-LaserWriter printers as long as they support PostScript.)

As the application draws each page to be printed, the printer driver can choose to transform it into printer-specific data in one of two ways. It can capture each drawing command as it's issued and turn it into printer-specific data right then, or it can wait until everything is drawn and print it all at once at the end. The first strategy is called *immediate printing*, the second is *deferred printing*.

Immediate printing is usually used in two cases—for PostScript printers and for draft quality printing to QuickDraw printers. The LaserWriter driver captures every drawing command (ovals, rectangles, text) as it occurs to the printing `grafPort` and turns it into PostScript immediately, whereupon it's sent to the currently-selected LaserWriter. In draft quality printing, most QuickDraw printers capture all the text that's drawn and turn it into text in the printer's built-in fonts. However, since most QuickDraw printers (like the ImageWriter II) have no built-in way to print anything but text and "dots," anything that's not text is ignored.

So how does an ImageWriter produce things other than text? The ImageWriter driver does all the work and converts everything to just dots (in various colors), so the ImageWriter knows what to do with it. The exact process here is kind of complicated, and if you want all the details you can read an article I wrote on this very subject ("Driving to Print") in issue #4 of *develop*, the Apple Technical Journal. (Back-issues are available from APDA. Call 800-282-2732 or 408-562-3910 for more information.)

However, you do need to know the basics, so take a deep breath and dive in. It's not that hard, just a bit confusing at first.

## The Basics

Printers tend to have better resolution than the screen—one dot on the screen may take the same amount of space as several dots on the printer. If one screen dot is turned into one printer dot, you'll wind up with printouts that seem shrunk.

To compensate, the printer driver scales the image so that it takes the same amount of space on paper as it does on the screen. Let's say, just for the sake of argument, that the pixels on the printer are exactly half as big as they are on the screen (this is actually pretty close to the case with the ImageWriter). That means the printer driver has to scale every pixel by a factor of two (horizontally and vertically) to make the printout the same size as it is on the screen. Going back to our earlier picture, each one pixel becomes four.

But wait a minute—that's exactly the same process (which we discussed last issue) that the Font Manager uses to turn a font into a font twice the size. Hmm. So, since the driver has to create a bigger font just to make printouts look the same size as they're supposed to, why can't it just ask for a bigger font from the Font Manager? That way you get better quality printing—if a font designed for the bigger size exists in your Fonts folder, you'll get the better resolution font on your printout. If the bigger font doesn't exist, the Font Manager will create it by scaling the original font. When it's printed, it will be "visually" scaled down to look exactly like the original. So in the worst case, the printout looks exactly like the screen, and often it will look better than it does on the screen. Pretty cool, huh?

## How Deferred Mode And Scaling Work Together

How does the printer driver accomplish this neat thing? It happens when you print in deferred mode. The driver normally captures a QuickDraw picture of all the drawing commands necessary to print a page. These pictures are all saved up (or "spooled" to memory or disk) during the printing process until the application ends printing by calling `PrPicFile`.

When the application calls `PrPicFile`, the printer driver gets as much memory as it can to try to draw the page to be printed in memory. Usually it can't get enough

to draw the entire page, because that's a huge amount of memory. (Assume 144 dots-per-inch for a page 8 inches wide by 10 inches tall—that's about 207,000 pixels per page, and on the Apple IIGS each pixel takes either two or four bits each for color information. At two bits per pixel, that's about half a megabyte to draw an entire page in memory. That's a lot.) The printer driver gets as much memory as it can and figures out how many horizontal "bands" it takes to draw the page with that much memory. For example, if it takes 512K to draw an entire page and the printer driver can get 64K of memory, it has to divide the page into eight horizontal bands to print it all.

The printer driver calls QuickDraw Auxiliary's `DrawPicture` routine to draw the part of the page it wants into a rectangle that's scaled to fit its needs (in our example, it draws it into a rectangle twice as wide and tall as the original to get 2x scaling). `DrawPicture` is nice and scales everything to match the rectangle you draw into, object by object. It draws the ovals and rectangles (and polygons and regions) bigger so they come out more smoothly, and it asks the Font Manager for double-sized fonts for all the text. That way everything comes out looking as good as it can.

So, now that you know all the details, you now will understand why your printouts look better if you have larger font sizes for the faces you commonly use. The ImageWriter and ImageWriter LQ drivers from Apple use 2x font sizes in the faster modes and 3x font sizes in the higher-quality modes, so if you use Helvetica 14, you'll get the best results if you also have Helvetica 28 and Helvetica 42 in your Fonts folder.

This can fall apart if something goes wrong, though—if you have a 2x or 3x font for which the metrics don't match the 1x font, scaling will start doing weird things. For example, if you're printing with Courier 12 in the best mode and you have a Courier 36 font that's not exactly three times the size of the Courier 12 font, QuickDraw doesn't know that and will draw the text as if it was the right size. That's when you start getting

justification that isn't, alignment that doesn't and line layout that basically looks like someone invoked a random number generator. If this happens to you and you have 2x or 3x fonts in your system, try to remember where you got them and see if you can get a corresponding 1x font from the same place and see if it works better for you.

### How Printing Fonts Works To PostScript Printers

All this is different when you print to a PostScript printer, because PostScript printers don't rely on QuickDraw for any of the images they print. Instead, the LaserWriter driver translates the QuickDraw commands to PostScript on the fly, and immediately sends them to the printer. PostScript then renders the page on the printer, and it's ejected when the page is closed (with `PrClosePage`, naturally enough). To get PostScript to print your fonts well, you need PostScript fonts that correspond to the fonts you use on the screen.

PostScript fonts are an example of the second of two kinds of fonts (as discussed in the last issue; go back and look if you don't believe me)—*outline* fonts. While a bitmap font is just a bitmap that exactly represents a given font (face, style, size and weight), an outline font is a set of mathematical equations (usually parametric Beziér curves) that, when rendered, produce the exact outline of a given character at any resolution. A PostScript (outline) font for Times contains enough information to create Times beautifully at any size on any PostScript device.

The problem with outline fonts is that somewhere, someone has to convert them from mathematical equations into real font strikes so they can be drawn on the screen, or else you can't use them on the screen. The NeXT computer has Display Postscript in it, so it can render PostScript fonts that way. Adobe also sells a software package called Adobe Type Manager (ATM) for Windows and for the Macintosh, which basically patches out the Font Manager on the computer so that when you ask for a given font size (say Times 17), ATM

looks to see if there's a Times PostScript font available and renders it instead of letting the Font Manager scale a bitmap font some non-integral amount (and yes, in this case it has to be non-integral because 17 is a prime number. Nyah).

Since there is no ATM-equivalent for the Apple IIGS [It should be noted that this article was written before "Pointless" was announced by WestCode Software. Since Pointless is, as I edit this, still VaporWare, I saw no reason to change what Matt just said. - Diz], PostScript fonts are most important to us for their use on the LaserWriter. Using PostScript fonts is easy for the LaserWriter driver, with one major exception—somehow, the driver has to figure out which PostScript font goes with which bitmap (screen) font. This isn't as easy as it sounds.

For example, take the plain (unstylized) variations of each of the fonts resident in the LaserWriter II (and Personal LaserWriter NT). Those fonts are named:

- AvantGarde-Book
- Bookman-Light
- Courier
- Helvetica
- NewCenturySchlbk-Roman
- Palatino-Roman
- Times-Roman
- Zapf Dingbats

Can you see a pattern here? I can't.

The problem is threefold. First, the unstylized version may be referred to as "Plain," "Roman," or with no suffix at all. Second, remember the concept of "weight" we discussed earlier? Many PostScript fonts are designed in several weights, and there's no way to know ahead of time which one might be available. Third, PostScript requires you to reference any font by its *exact* name, not by a partial name and not with any wildcard matching.

There are generally pretty complicated ways to work around this on other platforms. We'll examine the cousin of the IIGS, the Macintosh, for clues on one way to work around it.



The Macintosh uses PostScript font files in the System Folder (or also in the Extensions folder under System 7.0), and the LaserWriter driver looks there for a PostScript font when it needs one. How does it know which one to look for? How can it turn "New Century Schoolbook" into "NewCenturySchlbk-Roman"? Through the use of an interesting little data structure known as the "font family description" resource, with resource type FOND (resource types are specified with four characters identifiers on the Macintosh).

The FOND was invented because the original Macintosh font numbering scheme only allowed for 255 different fonts, since they tied each font's family number and point size to its resource ID. To get away from that problem with FONT resources, the Macintosh engineers invented new font resources (NFNT resource type; I pronounce it "nuff-nut") whose resource IDs have nothing to do with their family, style or size. To keep track of them instead, they invented the font family description resource, which tells the Font Manager all about a font family. It says things like "here are some things that are true for this font family in general, and here are the resource IDs of the NFNT resources with the bitmaps in them."

As long as they were inventing, they put PostScript information in the FOND as well. It contains the basic PostScript font family name, plus strings for any separators (like "-") and the strings for each stylistic variation (stuff like "Roman," "Book," "Oblique," "Italic," and more). It also contains a table that maps every QuickDraw stylistic variation to a combination of these strings. That way, the LaserWriter driver can figure out that to get the PostScript name for Helvetica condensed bold italic, it concatenates "Helvetica", "-", "Narrow", "-", "Bold" and "Oblique" to get "Helvetica-Narrow-BoldOblique." The LaserWriter driver also uses this information to form the PostScript font file name on the Macintosh—it takes the first five letters of the basic name and the first three letters of every stylistic variant that's not a separator. In our case, the

PostScript font file would be named "HelveNarBolObl". Not very descriptive, but it gets the job done.

### Why Doesn't It Work Better?

The main reason this doesn't work on the IIGS is that there is no equivalent of the FOND resource. Apple IIGS fonts only contain bitmap font information and the name of the font family; they don't have anything that would map their names to PostScript font names. The LaserWriter driver tries to get around this as best it can—it knows all the fonts that are built into the LaserWriter family of printers, and it also knows how to deal with Sonata (the musical symbols font used in desktop music publishing) and Carta (the map symbols font used in some educational applications). For other fonts, it guesses that the base PostScript name is the same as the font family name on the Apple IIGS, that the separator is "-" after the base name only, and that the plain variant has no suffix, bold is "Bold", italic is "Italic", and so forth. The exact details and mappings can be found in Apple IIGS Technical Note #67, "LaserWriter Font Mapping," a copy of which is on your GS+ Disk. If the font doesn't match this PostScript information, it's not found and the IIGS creates a crude, bitmap-based PostScript Type 3 font for printing. (Normal PostScript fonts are Type 1, which allows much better rendering of fonts but can't easily or accurately be created from a bitmap.)

### But Wait, It Gets Worse!

As if this weren't enough (and by gosh, don't you think it ought to be?), there's even more bad news—there's no native Apple IIGS PostScript font file format. When you purchase PostScript fonts, you can get them in either Macintosh or IBM format. IBM format is just the data fork of a file, so the IIGS could deal with it—but there's no accepted naming convention for IBM PostScript fonts. You could want to print in ITC American Typewriter and purchase that font from Adobe (or Bitstream or any other vendor that's licensed for it), and get a disk of font files with arbitrary names that the LaserWriter driver can't figure out. (Not to mention that there's no MS-DOS FST announced for the IIGS.)

There is an HFS FST coming, and there's a well-defined Macintosh PostScript font file format (with a well-defined if slightly annoying naming convention, too). Unfortunately, all the data contained in Macintosh PostScript font files is contained in Macintosh resources of type POST, which the Apple IIGS Resource Manager can't read. To use them, the LaserWriter driver would have to read Macintosh resources directly using GS/OS calls. This isn't impossible—Apple already has code that does this, it's used in Teach on System 6 to read MacWrite files. However, it wouldn't necessarily be speedy.

To recap, here's the modifications that would be necessary to the Apple IIGS system to support downloadable PostScript fonts:

- A new font structure that can include PostScript mapping information for font families is necessary. This implies there needs to be some kind of utility that can append this information to existing bitmap fonts, too, or that someone needs to recreate all existing fonts with this information added (if there is a PostScript equivalent for the bitmap font). Without this extra information, the LaserWriter driver can't do any better than it currently does.
- The LaserWriter driver would have to be modified to read this information, read Macintosh PostScript files and download them to the LaserWriter as necessary, still converting bitmap fonts to Type 3 fonts when no Type 1 font is available. This isn't complicated beyond belief, but it's not trivial, either.
- Some kind of conversion utility would almost have to exist to translate Macintosh FOND information into the new Apple IIGS structure as well as creating bitmap fonts for the IIGS, since otherwise getting bitmap fonts that match the PostScript fonts would be difficult if not impossible.

You can probably see that this is not a trivial engineering and testing task,

which is one reason Apple has so far chosen not to implement it. At least now you know the kind of work necessary to pull it off, so you can calculate the kinds of features Apple might have to leave out of a System Software release to do this instead. Aren't you glad you're not an engineering manager? I'm glad I'm not.

### Miscellaneous Font Stuff

So what's left to know about fonts? Well, probably lots and lots, especially if you're a typographical (ahem) type, but there's one other topic that comes to mind—could we have outline fonts on the Apple IIGS display screen? The answer is, of course, “yes, but is it practical?”

### “TrueType”—What It Is And Isn't

There's been a lot of confusion about TrueType ever since Apple marketing started describing the StyleWriter and Personal LaserWriter LS printers as “having TrueType built-in for excellent results without PostScript” (or something like that). As far as printing on the Macintosh is concerned, this is accurate enough for most people, but it confuses you if you're trying to use one of these printers without a Macintosh.

First, TrueType is not a magical thing. It is an outline font format created and endorsed by Apple and Microsoft as an alternative to Adobe's Type 1 PostScript format. That's all. It consists of a structure for defining the mathematical curves of individual characters as well as additional structures for PostScript mapping information, kerning information (placing characters more closely together than the default for the entire font), international information, and a very powerful *hinting* structure that allows the font to actually contain a little program to adjust the shapes of the curves so the fonts look better at very low resolutions (like on a screen) at small point sizes. (Type 1 fonts contain hinting as well, but it's generally agreed that TrueType's format is more powerful. Type 1 fonts can't contain extensible data structures; those are usually placed in a separate “Adobe Font

Metrics” or “AFM” file that only some programs use; the LaserWriter driver is not one of them.)

So could someone write a program that lets you see TrueType (or Type 1, for that matter) fonts on screen with excellent quality at any point size? Probably. There's an entire Apple IIGS tool set used to create bitmap font strikes of requested kinds—the Font Manager. A utility package could replace the Font Manager with its own routines to turn outline fonts (PostScript, TrueType or any other kind) into bitmap font strikes. For example, an outline font utility package that replaces the Font Manager could intercept a request for Times 12, load an outline Times font and image it at 12 points. If it then turns that into a bitmap font just like the regular Font Manager returns, it can be installed into a grafPort and the rest of the system could use the font just as always—only the Font Manager needs to be modified.

It's not all peaches and cream, though. First, rendering outline fonts isn't all that trivial. If you want, get a copy of *Adobe Type 1 Font Format* (Addison-Wesley) or *The TrueType Font Format* (APDA) and peruse it. Creating something that interprets these fonts is approximately as easy as decongesting your sinuses with your toes.

Also, creating a bitmap from a parametric (quadratic or cubic) equational representation isn't guaranteed to be incredibly speedy. PostScript uses entirely floating-point math; TrueType uses fixed-point math for a little speed advantage. Either way, it could take an unaccelerated Apple IIGS several seconds to create any requested bitmap font (by the way, this is purely conjecture; I don't have a secret outline font rasterizer I'm basing these figures on). It might be speedy enough, but it might be a very noticeable delay (say, 15 seconds or so) when you install a new font. With the strategy outlined above there wouldn't be a delay after that, though. (TrueType on the Macintosh seems to image each character as its necessary, which makes initial text drawing a little slow also.)

The aspect ratio might also cause some interesting decisions for the programmers of such a utility. Outline fonts are generally designed for square coordinate systems, where the ratio of a unit of the horizontal to a unit of the vertical is equal to 1. The Apple IIGS doesn't have such a ratio—in 640 mode, the pixel aspect ratio (horizontal to vertical) is approximately 5:12. However, since outline fonts are mathematically determined, an outline font package could let you choose to create fonts that look “correct” on the Apple IIGS screen. Instead of using “tall and skinny” fonts designed for square aspect ratios and using “Vertical condensed” printing to get “normal” printouts, the authors could give you the option to create the font adjusted for the Apple IIGS. This might create some problems when exchanging files with people who don't have the outline font package, but it could greatly simplify printing. (Printing would be great with outline fonts anyway, because no matter what size the printer driver wanted, the outline font package could provide it, and with the right metrics.)

### That's Probably Enough

At least, I think so. Hopefully if you've read all this straight through and still have questions about fonts and printing, you'll feel motivated to read one of the documents mentioned within for more information. If not, go out and have a scoop of ice cream, because you've learned something today. Congratulate yourself. Use your newfound knowledge to make things work better on your IIGS. And if you have any questions or suggestions for articles, let *GS+* know. They love getting mail like that. Trust me. See you next time. *GS+*

# Working With The Toolbox

By Josef W. Wankerl  
Part 6: The Resource Manager

Almost anyone in-the-know will tell you, if your new application doesn't use resources, it's almost worthless. And, chances are, you spent more time writing the application without resources than you would have if you had used them.

A resource is nothing more than a block of data that can be dynamically loaded whenever it is needed. For example, if I want to call `StartUpTools` without resources, I have to devote code to build the parameter list of tools that I want to start. But, with resources, all I have to do is issue the `LoadResource` call and the parameter block is automatically loaded in. And, if I ever want to change the tools that I start, I can use a resource editor, like `Genesys`, and I never have to recompile my program. Plus, most Toolbox calls (including `StartUpTools`) contain parameters so you can even skip the `LoadResource` step. It ends up being just like hard-coded data, the difference is in how easily the data can be modified.

## Resources

Resources are identified by two numbers: the resource *type* (a word) and the *type ID* (a longword.) There is nothing really magic about the type or ID, however, Apple has set some standards on the type: any type in the range of \$0001 to \$7FFF is a user-defined type and any data can go there, while types in the range of \$8000 to \$FFFF are Apple-defined types. For example, type \$8006 is called a `rPString` resource, and this type should always contain a Pascal string. The ID field identifies a resource within a given type. For example, the `rPString` with ID \$00000001 could be the Pascal string "Hello."

So, let's dive right in and learn a Resource Manager call! Perhaps the most common Resource Manager call is `LoadResource`. The `LoadResource` call takes the resource type and ID and returns a handle to the data requested. The data may have already been in memory (from a previous `LoadResource` call or a preload bit set in the resource's attributes

word—but this is all described a bit later) or it may have been loaded off a disk. So, to use the example from above, `LoadResource($8006, $00000001)` would return a handle to the "Hello" Pascal string. Pretty easy, eh? Note that even though the handle is owned by your application, you should not dispose of it. If you want to get rid of the handle, Resource Manager calls should be made to do that, not Memory Manager calls.

## Where The Wild Resources Are

In order to use resources, your file system must support extended files. The ProDOS, AppleShare, and HFS FSTs all support extended files. Standard convention equates a stream of bytes (a file) with an identifying title (a filename). An extended file can be thought of as two (or even more, if Apple decides it necessary) files, or *forks*, identified by one filename. When a file is opened, generally the *data fork* is opened. The data fork is the primary stream of bytes for the filename. If the file was a normal (not extended) file and it was opened, the data fork would be opened. The GS/OS `Open` call takes a parameter which requests which fork of a file should be opened. The *resource fork* is the additional stream of bytes for a file. You can treat the resource fork of a file just like a data fork, but generally the resource fork is left for the Resource Manager to handle.

The Resource Manager maintains control information on where individual resources are located within the resource fork. Page 45-14 of the *Apple IIGS Toolbox Reference: Volume 3* begins the description of that information. It is not necessary to know this information in order to use resources, but it might help you conceptualize what is going on behind the scenes when you issue Resource Manager calls.

## What To Do Now?

Now would be a good time to mention that if you don't have the *Apple IIGS Toolbox Reference: Volume 3* then you're going to be really lost. The Resource Manager chapter describes how to use the Resource

Manager in a very detailed manner. It is, however, just a reference and not a learning tutorial. After you've read this feature and played with the source code on your GS+ Disk, be sure to check out the Resource Manager chapter to familiarize yourself with the rest of the features of the Resource Manager.

## How To Use Resources

The first thing you need to do to use resources is issue the `ResourceStartUp` call. This tells the resource manager which application is currently running so when a `LoadResource` call is made, the correct memory ID can be assigned to the handle. Of course when your application finishes up, it needs to issue the `ResourceShutDown` call. Before you can make any `LoadResource` calls, you also have to tell the Resource Manager which resource fork your resources are located in. You do this with the `OpenResourceFile` call. The `OpenResourceFile` call opens the resource fork of a file, makes it the current file (the file at the head of the search chain), and loads any resources with preload bits set in the attributes word. When you are done with the file, you can issue a `CloseResourceFile` call, however the `ResourceShutDown` call automatically closes any resource files that you opened.

To automate things, the `StartUpTools` call will perform all the previous tasks if you request that you want the Resource Manager started. The resource fork associated with your application will be the file that is opened, and the resource fork will be opened with read-only access. If you need to have read and write access to your resource fork, you must first close the fork with `CloseResourceFile` and then open it again with `OpenResourceFile`. The file ID returned by `OpenResourceFile` must be stored in the `resFileID` word of the `StartStop` record (see page 51-4 in the *Apple IIGS Toolbox Reference: Volume 3* for the `StartStop` record structure managed by `StartUpTools`.)

## Resources Attributes

Each resource has a set of attributes associated with it. A good portion of those attributes mimic the attributes a block of memory can have (locked, fixed, page aligned, etc.—see the Memory Manager article in *GS+ V2.N5* and the *Apple IIGS Toolbox Reference: Volume 1* for more information on memory block attributes). Attributes unique to resources are: `resConverter`, `resAbsLoad`, `resProtected`, `resPreLoad`, and `resChanged`. The attributes are set by individual bits in a resource's attributes word. The attributes word is not part of the resource, it's part of the control information of a resource. The attributes of a resource may be retrieved with the `GetResourceAttr` call, and changed with the `SetResourceAttr` call.

The `resConverter` bit lets the Resource Manager know whether a resource converter is needed to load and save the resource. Resource converters are covered in the "Resource Converters" section below. The `resAbsLoad` bit lets the Resource Manager know whether a resource must be loaded at a specific memory location or not. The `resProtected` bit lets the Resource Manager know whether a resource is write protected. If a resource is write protected, it cannot be changed. The `resPreLoad` bit tells the Resource Manager to automatically load the resource into memory when the `OpenResourceFile` call is made. This could speed up access to key resources by already having them in memory when they are needed instead of having to fetch them from disk. The `resChanged` bit lets the Resource Manager know whether the resource has been changed or not. The `resChanged` bit is for in-memory resources and it can be modified with the `MarkResourceChange` call. Resources with the `resChanged` bit set will be written out to disk whenever an `UpdateResourceFile` or `CloseResourceFile` call is made. For complete information on the attribute bits, see page 45-9 of the *Apple IIGS Toolbox Reference: Volume 3*.

## Creating A Resource Fork

Well, loading resources from an already existing resource fork is nice, but

sometimes you need to dynamically add resources to, and subtract resources from, a resource fork. To do this, you first need to initialize the resource fork with the `CreateResourceFile` call. This sets up the resource fork so it can hold resources. If a file already has a resource fork, there is no need to call `CreateResourceFile`. Next you need to call `OpenResourceFile` to open the resource fork with read and write access. Now the resource fork is ready to be modified.

To add a resource to a resource fork, you use the `AddResource` call. The `AddResource` call takes a handle and then adds it to the current resource file. Once a resource has been added, your application no longer has control of the handle. To remove a resource from a resource fork, you use the `RemoveResource` call. The `RemoveResource` call deletes the specified resource from the current resource file.

What really comes in handy is the Resource Manager's ability to change resources. If you want to change `rPString $00000001` from "Hello" to "Goodbye", you simply have to load the resource (with the `LoadResource` call), change the resource (resize the handle and change the contents), and mark the resource as changed (with the `MarkResourceChange` call.) The Resource Manager will save the changed resource for you, and the next time you request it with a `LoadResource` call, the newly changed resource will be returned to you.

## Resource Trivia

A resource is in one of two places: in memory or on disk. When the `LoadResource` call is made, the Resource Manager checks to see if the resource is already in memory, and if so, it returns the handle to it. If it is not in memory, the Resource Manager loads it and then returns the handle. Now the resource is in memory, so the next time a `LoadResource` call is made requesting the same resource, no disk activity needs to take place. If the resource only needs to be used once, its purge level can be set using the `ReleaseResource` call. If

the purge level passed is a negative value, then the memory image of the resource is disposed of. The resource will still exist on disk. If your application needs to have control of a resource's handle, the `DetachResource` call can be made. Once a resource has been detached, the Resource Manager no longer has a copy of that resource in memory. Your application can then use the detached resource any way it chooses. A good reason to use `DetachResource` is when you want to copy a resource—first call `LoadResource` to bring the resource into memory, then call `DetachResource` so the Resource Manager no longer controls the resource's handle, then call `AddResource` to give the Resource Manager back the handle, but under a different type and/or ID.

## Resource Converters

When the `resConverter` attribute bit is set for a resource, a special routine called a resource converter is called whenever a resource is loaded from, or saved to, disk. The resource converter can manipulate the resource in any way it chooses. For example, code resources usually have the `resConverter` bit set. The Miscellaneous Tool Set has a call, `GetCodeResConverter`, which returns the address of a code converter that will convert code resources. This resource converter will take a resource that contains code in Object Module Format and relocate it in memory. In order for the Resource Manager to know about resource converters, they must be logged in with the `ResourceConverter` call. The call takes a pointer to the resource converter code, the type of resource to convert, and a flag word which specifies whether the converter should be logged in or logged out, and whether the converter is a system or application converter. An application converter will convert resources for only your application. A system converter will convert resources for any application. System converters can be used to perform conversions on resources behind an application's back—for example, you can log in a system converter with a permanent Init file to add quotes around every Pascal string loaded. Application converters are the more common variety.

## Trying Resources Out

The sample program on your *GS+* Disk this month contains some pascal code to:

- Create a new resource file
- Load in a resource
- Add a resource
- Remove a resource
- Change a resource (with a call to `MarkResourceChange`)

The program is a simple one. All it does is remember a string. The string is remembered in a file by the name of `@:SaveFile` [for information on the `@:` prefix, refer to *GS/OS Technical Note #10*, which is provided on your *GS+* Disk - Editor], which has a file type of `$F1`, or `User #1`. Note that this filename is stored in a resource, so you can change

it without recompiling the program. When you first run the program, it has to create a new resource file to store the string in. Once the resource file is created, you can then type in a string to add. Now you have the option to change the resource, or you can delete it. The program is controlled by a simple menu. Basically, the program demonstrates some common Resource Manager calls so you can get the feel of how to use them. Resources really come in to play when you have controls, windows, and menus in them. However, since I haven't discussed any of those tool sets yet, I couldn't very well give a more impressive demonstration. Rest assured that you will get to see resources in great action very soon. If you feel daring, check out the

other programs on your *GS+* Disk. They all make extensive use of the Resource Manager.

That's pretty much it for this installment of *Working With the Toolbox*. One final topic that you should explore is the resource file search sequence, which is discussed on page 45-13 in the *Apple IIGS Toolbox Reference: Volume 3*. If you were confused with anything about the Resource Manager, or if you have questions about past installments of *Working With the Toolbox*, let me know. I'll be happy to answer your questions as best I can. Next issue, I'll be opening up my *Apple IIGS Toolbox Reference* manuals to the Window Manager chapter, so stay tuned!

*GS+*

# Glossary

In each issue of *GS+* Magazine, we present a glossary of some of the more common terms in the IIGS world and some of the more uncommon terms that we use in each issue. If you have a term or bit of jargon that you would like to see explained, let us know and we'll try to get it in a future "Glossary" installment. Past installments of the *GS+* Glossary can be found on your *GS+* Disk in the plain ASCII text file, **Glossary**. (Entries marked with an "\*" have appeared in previous installments of the *GS+* Glossary and are repeated here for our beginning readers.)

## ASCII

ASCII is an abbreviation for "American Standard Code for Information Interchange." This is the code system that almost every computer on the planet uses to represent information . . . except, of course, IBM mainframe computers.

## Font Manager

The Font Manager is a tool set built into the Apple IIGS Toolbox that allows programs to easily work with different fonts.

## Installer \*

The Installer is a program that automates the process of copying files. It is provided with the IIGS System Software and with many third-party software products (such as *GS+*

Magazine). In the simplest terms, the job of the Installer is to "put the right files in the right places." By using the Installer (when provided) you reduce the possibility of the wrong file being copied to the wrong place.

## Outline Font

An outline font is a font whose characters are represented by a set of mathematical equations. By scaling these equations, the characters in the font can be accurately rendered at any size.

## Pixel

Pixel is short for "Picture Element." A pixel is the smallest dot that the computer can display on its screen.

## Print Manager

The Print Manager is a tool set built into the Apple IIGS Toolbox that allows programs to print text and graphics.

## QuickDraw II

QuickDraw II (also known simply as "QuickDraw") is a tool set built into the Apple IIGS Toolbox that allows programs to draw objects on the IIGS screen.

## System Software \*

This is the software that makes your IIGS a IIGS. System Software is responsible for almost every aspect of the operation of your

IIGS. Among its many duties are program launching and disk maintenance (via the Finder), fixing problems in the Toolbox, and providing drivers for the various peripherals you may have attached to your IIGS (disk drives, printers, etc.). System Software is the foundation on which all IIGS-specific programs are built.

## Teach

Teach is a simple file format created by Apple Computer, Inc. that allows font, size, and style information to be stored with ASCII text documents. The Teach format is supported by most of the newer IIGS editors, including our own EGOed NDA. For more technical information on the Teach file format, refer to the Apple II File Type Note for file type \$50 and AuxType \$5445.

## Toolbox \*

A collection of software routines that are used to simplify the process of writing programs for the IIGS.

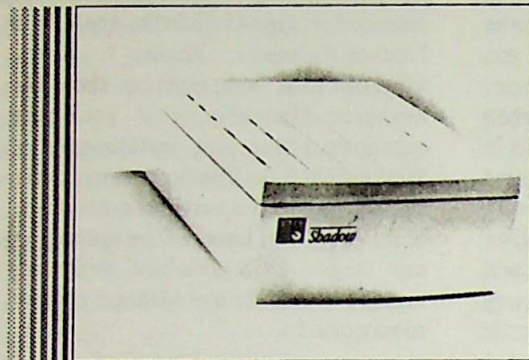
## TrueType

TrueType is an outline font (see "Outline Font" above) format endorsed by Apple Computer, Inc. and Microsoft, Inc.

*GS+*

# TMS

## SERVICE • SUPPORT • SATISFACTION



### Shadow PORTABLE HARD DISK DRIVE

You asked for it...here it is!  
This is no ordinary hard disk.  
This is TMS' *Shadow*, Portable Hard Disk Drive.

- Full Two Year Warranty • Toll-Free Technical Support
- Supports any computer with a SCSI bus interface
- External SCSI ID selection • Internally terminated
- Two soft rubber pads insure solid, level seating
- Auto-parking heads • External power supply
- Built-in Apple Standard Lock System™
- Fits in a briefcase, desk drawer or optional Soft-Touch Carrying Case
- Ships formatted & partitioned
- Unique, QuickLock Power Cable™
- Ships with latest System Software
- 25+ Mbs of shareware & freeware
- LEDs positioned for easy visibility
- Ships with full documentation
- Quantum drive mechanisms, 52 Mb to 1 Gig capacities
- Ultra quiet, fan-free

|                     |             |
|---------------------|-------------|
| Shadow 52 LPS 11ms  | \$339       |
| Shadow 105 LPS 11ms | \$479       |
| Shadow 120 LPS 10ms | \$529       |
| Shadow 240 LPS 10ms | \$829       |
| Shadow 425 Mbs 10ms | \$1389      |
| Shadow 1 Gig 10ms   | Please call |

#### ACCESSORIES

|                                                          |             |
|----------------------------------------------------------|-------------|
| Pass-Through 50 Cable™                                   | \$21.95     |
| Additional external power supplies                       | Please call |
| DB-25 floppy port power cable                            | \$9.95      |
| Soft-Touch carrying case (partitioned for all equipment) | \$29.95     |

Current TMS hard disk owners call today about TMS' "Shadow To Go," \$99 upgrade policy!



8am-8pm M-F, Sat. 9am-6pm EST  
School POs & CODs Welcome!

IF YOU DON'T SEE IT HERE, PLEASE CALL!

# Peripherals

Ask yourself this question, "Can anyone else give you a hard drive with all of these features, at these great prices—and offer TMS' experience and record for customer service?"

## TMS Peripherals

### PRO SERIES \*INTERNAL DRIVES

|                                       |       |
|---------------------------------------|-------|
| Pro 52 LPS 11ms                       | \$249 |
| Pro 105 LPS 11ms                      | 389   |
| Pro 120 LPS 10ms                      | 439   |
| Pro 240 LPS 10ms                      | 749   |
| Pro 425 10ms                          | 1299  |
| Pro 1000 10ms                         | Call  |
| Full Two Year Warranty                |       |
| *Internal pricing for Macintosh only! |       |

### PRO SERIES EXTERNAL DRIVES

|                        |       |
|------------------------|-------|
| Pro 52 LPS 11ms        | \$339 |
| Pro 105 LPS 11ms       | 479   |
| Pro 120 LPS 10ms       | 529   |
| Pro 240 LPS 10ms       | 829   |
| Pro 425 10ms           | 1389  |
| Pro 1000 10ms          | Call  |
| Full Two Year Warranty |       |

### PRO TAPE BACKUP SYSTEMS

|                                  |  |
|----------------------------------|--|
| Pro T60, \$439, includes 1 tape  |  |
| Pro T155, \$499, includes 1 tape |  |
| Extra tapes \$15.95 & \$24.95    |  |
| Full One Year Warranty           |  |

### PRO REMOVABLE HARD DRIVES

|                                    |  |
|------------------------------------|--|
| Pro R45, \$479 20ms, incl. 1 cart. |  |
| Pro R90, \$699 20ms, incl. 1 cart. |  |
| Extra carts \$67.95 & \$119.95     |  |
| Full Two Year Warranty             |  |

### PRO SERIES FEATURES

International Auto-Switch Power Supply  
2 AC Jacks  
VCA Mechanism  
Selectable Pushbutton SCSI ID Switch  
2 SCSI Ports  
Shielded Power Supply  
All Manuals  
Shareware: 25 Mbs, Macintosh • 29+ Mbs, GS  
"Whisper Quiet" Fan  
All Necessary Hardware

### 30 MONEY BACK— PERFORMANCE GUARANTEE

TMS Peripherals' 30 Day Money Back & Performance Guarantee: "If you experience a problem with your drive, TMS will ship you a new drive & pick up the suspect drive—at our expense!"

### TMS TWO YEAR FULL WARRANTY

TMS Peripherals' Full 2 Year Warranty—Toll-Free Tech Support Line: "If a problem persists after thorough troubleshooting by our courteous, expert technical staff—ship us the suspect drive & we'll send you a replacement unit within 48 hours."

## C.V. Technologies

"We make hard drives RamFAST"

### RamFAST SCSI V2.01

This is the SCSI card that is upgradable to 1 Mb of cache. It is also the SCSI card that is 5 to 8 times faster than the Apple SCSI card under ProDOS 8 and twice as fast under GS/OS. It has an automatic lookahead for unbeaten performance. It has built-in tape backup software that runs in the background. It has a mouse-driven configuration program. It has password protection. Of course, it's also TOTALLY System 6.0 compatible. And by the way, it's made by C.V. Technologies.

256K Rev. D V2.01 \$179.95,  
1 Mb Rev. D V2.01 \$239.95,  
Reconditioned 256K Rev. C \$99.95

**LIFETIME WARRANTY**

Please reduce RamFAST picture (from last issue) to fit & silhouette here.

### GS Memory Board

The memory board that is upgradable to 4 Mbs and fully DMA compatible up to 8 Mbs utilizing its piggyback connector is now the most affordable IIGS memory board available today! It's made by a company known for its support of the Apple II market. It's made by C.V. Technologies.

|      |       |
|------|-------|
| 0 Mb | \$49  |
| 1 Mb | \$89  |
| 2 Mb | \$133 |
| 3 Mb | \$177 |
| 4 Mb | \$221 |

**LIFETIME WARRANTY**

### Memory

|                       |       |
|-----------------------|-------|
| 256K chips (set of 8) | \$18  |
| 1 Mb chips (set of 8) | \$50  |
| 1 Mb SIMMs            | \$39  |
| 2 Mb SIMMs            | \$95  |
| 4 Mb SIMMs            | \$141 |

**LIFETIME WARRANTY**

**PLEASE CALL TODAY ABOUT OUR NATIONAL PRICE MATCHING POLICY!**

# AE

### Vulcan Gold Upgrade \$45.95

|                               |          |
|-------------------------------|----------|
| 3.5" 800K                     | \$195.95 |
| 3.5" 1.6 Mb                   | \$235.95 |
| 5.25" Drive                   |          |
| Ile Compatible                | \$138.95 |
| Power Supply Ile              | \$78.95  |
| TransWarp 32K                 |          |
| Upgrade                       | \$79.95  |
| DL II Express w/ V.42         | \$233.95 |
| DL II Express w/ V.42 & S-Fax | \$290.95 |

**RamWorks III**  
256K \$129.95 • 512K \$149.95 • 1Mb \$189.95

### PC Transporter \$248.95

Now you can run MS-DOS programs on your Apple at more than three times the speed of an IBM XT. Run Lotus 123, dBASE III PLUS, Symphony, Microsoft Word, the Flight Simulator and thousands of other business and entertainment titles on your Apple! Designed by experts, so you don't have to be one. **Full One Year Warranty.**

### GS Power Supply \$84.95

The standard Apple power supply is rated at only 2500 mA. With Applied Engineering's Heavy Duty Power Supply you'll have over 6000 mAs available. **Full One Year Warranty.**

### Conserver \$74.95

The Conserver effectively cools your IIGS while protecting against power surges and helps organize a cluttered workspace. There are also six switched AC power outlets to accommodate your computer, monitor and other peripherals. Make the cool safe choice to protect your IIGS. **Full One Year Warranty.**

Roger  
Wagner  
Publishing

### HyperStudio 3.0 \$99

|                            |         |
|----------------------------|---------|
| Clip Art Vol. 1 or Vol. 2, |         |
| Clip Sounds or             |         |
| Desktop Screen Saver       | \$19.95 |
| Graphic Exchange or        |         |
| Macromate                  | \$28.95 |
| SoftSwitch                 | \$33.95 |



**WestCode**  
SOFTWARE

### POINTLESS \$49.95

Improves output with most printers, including ImageWriter™ and DeskWriter™, by eliminating unsightly text with jagged edges. Letters displayed appear smooth, crisp and clear at even the largest point sizes. Pointless' INIT/CDEV generates characters at any point size, providing laser-sharp text, transparently from the GS/OS System Folder. Includes a variety of TrueType Fonts. *System 6.0—O.K.*

### INWORDS \$78.95

Discover the power & ease of InWords™ today. InWords provides a revolutionary new way to enter text into your Apple II, at up to 500 WPM. Requires 512K & Quickie or compatible scanner.

**InSync**

### ProTERM 3.0 \$78.95

Vitesse FPO  
Reduce to fit  
(if necessary)  
& surprint  
black.

### QUICKIE SCANNER \$195.95

The only hand-held, grey-scale scanner for all "slot equipped" Apple IIs & Laser 128. *Editor's Choice, inCider, June '90*

### HARMONIE \$32.95

### SALVATION SUPREME \$95.95

|                                |       |
|--------------------------------|-------|
| ALL 5 Salvation IIGs Utilities |       |
| Bakcup                         | 28.95 |
| Exorciser                      | 27.95 |
| Wings                          | 45.95 |
| Deliverance/Renaissance        |       |
| COMBO                          | 44.95 |



### PLATINUM PAINT \$58.95

|                     |         |
|---------------------|---------|
| BeagleWrite GS      | \$58.95 |
| GS Desk Accessories | \$34.95 |
| T.O. SideSpread     | \$32.95 |
| T.O. Graph          | \$51.95 |
| T.O. SuperFonts or  |         |
| T.O. SuperForms     | \$41.95 |
| T.O. UltraMacros    | \$38.95 |

**Broderbund®**

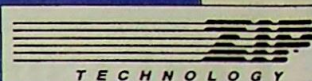
|                        |         |
|------------------------|---------|
| The New Print Shop     | \$28.95 |
| McGee at the Fun Fair  | \$23.95 |
| Macintosh Version      | \$26.95 |
| Katie's Farm or McGee  | \$23.95 |
| Macintosh Version      | \$26.95 |
| Where in (the) World,  |         |
| USA, Europe or Time    |         |
| is Carmen Sandiego?    |         |
| IIGS or Mac            | \$28.95 |
| The Playroom, Apple II | \$23.95 |
| Macintosh Version      | \$28.95 |

**The Byte Works Inc.®**

|                         |          |
|-------------------------|----------|
| ORCAC or                |          |
| Pascal Compiler         | \$78.95  |
| ORCAM 2.0 Assembler     | \$59.95  |
| Design Master           | \$48.95  |
| ORCA/Disassembler       | \$28.95  |
| Talking Tools           | \$38.95  |
| Learn to Program Bundle | \$118.95 |

IIGS Products From  
**Seven Hills**  
Software

|                               |         |
|-------------------------------|---------|
| SHOEBOX™                      | \$39.95 |
| Requires 1.5 Mbs & hard disk. |         |
| FORMULATE™                    | \$32.95 |
| GRAPHIC                       |         |
| WRITER III™                   | \$88.95 |
| SUPERCONVERT™                 | \$27.95 |
| FONT                          |         |
| FACTORY GS™                   | \$25.95 |
| EXPRESS                       | \$25.95 |
| Requires hard drive.          |         |



### ZipGSX

"...makes a full-featured GS word processor faster than several Mac word processors running on a monochrome display." —*Nibble Magazine*  
**Compatible with ALL GS hardware and software.**

9 Mhz/32K Cache memory,  
DMA Compatible  
**Now only \$248.95**

7 Mhz/8K Cache memory,  
DMA Compatible  
**Now only \$148.95**

**Full One Year Warranty on ZIPGSX.**

**8 Mhz Zip**  
**Chip**  
**for your Ile/Ilc.**  
**Available**  
**now!**  
**ONLY \$144.95**

DreamWorld Software

**NEW!** **DreamGrafix™**

DreamGrafix is the ONLY full-featured 16, 256 & 3200 color paint program for the Apple IIGS that allows users to create & edit the highest quality pictures available. DreamGrafix supports all known Super Hi-res graphics including Apple Preferred Format, French 3201 and Paintworks formats. It can create and display PaintWorks animations and comes with a complete tool set including pencil, line, oval, rectangle and airbrush. Compatible with all system accelerators, this GS/OS desktop application is also compatible with CDAs, NDAs, inits and system drivers. DreamGrafix supports 16 color 640 mode as used by HyperCard™ & HyperStudio™. It's also totally System 6.0 compatible. Wake up to DreamGrafix today! **\$69.75**

International 407.998.9958

FAX: 407.998.9983

1120 Holland Drive, Suite 16  
Boca Raton FL 33487-2729

800 2ASK 448TMS

GS+ Magazine proudly presents... *Cool Cursor!* I've always secretly hated the watch cursor that appears whenever a lengthy operation is taking place... and I finally got around to doing something about it! Cool Cursor is a Control Panel (CDev) which lets you change the wait cursor from the drab static watch into an exciting animation of your choice.

## The Control Panel

After you have installed the Cool Cursor Control Panel (C.C.C.P.) (using the Installer on your GS+ Disk), you can select it from the list of Control Panels in the Control Panel NDA. The most prominent thing you will see next is a list of all the various cursors you can see when your computer is busy. Simply select a cursor from the list and then click on the Wait Cursor button to see what the cursor looks like. If the animation you see is too fast or too slow for your liking, you can choose a new speed by simply typing it into the LineEdit speed field. The speed is based on 1/60 of a second so if you wanted the cursor to change every second, you'd use 60 as a speed. If you get tired of watching the cursor, you can click on the Pointer Cursor button to return the cursor to its natural arrow cursor. Finally, if (for some obscure reason) you don't want an animated cursor, you can uncheck the Active checkbox.

## The Cursors

This next section is a bit technical, but I've included it here in the user documentation because the ability to use new cursors is one of the neatest things about Cool Cursor. (In other words, you can make and use your own cool cursors!)

Cool Cursor builds its list of cursors from the `*:System:CDevs:Cursors` directory. Each cursor file is of type \$005A and auxtype \$0000802F, formally called a *Cool Cursor document*. If you have an idea for a new cursor, and you have a resource editor like Genesys, making a new Cool Cursor document is a breeze. A Cool Cursor document is an extended file with an empty data fork. The

resource fork must contain an rPString (type \$8006) resource number \$00000001. This is the name of the cursor as it will appear in the list. There are two lists of rCursor (type \$8027) resources: one list for 640 mode, and one list for 320 mode. Both lists are optional, and if absent the cursor will default to the standard watch cursor. The 640 mode rCursor list is a contiguous set of resources that starts at resource number \$00001000 and can increase to \$00001FFF. The 320 mode rCursor list is a contiguous set of resources that starts at resource number \$00002000 and can increase to \$00002FFF.

## Need I Say More?

That's basically all there is to using Cool Cursor and making your own cursors! Simple, yet elegant. If you find a problem with Cool Cursor, please fill out the problem report form on your GS+ Disk and send it in. If you want to know more about the inner working of Cool Cursor, read on.

## Saying More...

### About Programming That Is!

It took me less than a week to get Cool Cursor completely up and running. I spent a lot of hours not sleeping, to accomplish that, though. Cool Cursor simply patches five Toolbox functions (SetCursor, GetCursorAdr, QDAuxStartUp, QDAuxShutDown, and WaitCursor), installs a heartbeat interrupt task, and uses the scheduler to change to the next cursor in an animation.

## Patching The Toolbox

IIGS Technical Note #101 (which is on your GS+ Disk) was certainly helpful in giving me the necessary information needed to patch the Toolbox, however it was a bit unclear in some areas. It gave some general guidelines as to how to do the task, but no detailed examples. To clarify 101, here is my detailed example (be sure to read Technical Note 101 first to get an idea of what's going on—the following steps *clarify* 101, they don't replace it):

1) Call LoadOneTool on the tool set that you are going to patch.

2) Call GetTSPtr to get the pointer to that tool set's Function Pointer Table (FPT).

3) Get the number of entries in the FPT from the first entry in the FPT (the Technical Note says the first entry is a word, when it's really a longword, however there cannot be more than \$FF functions in a tool set, so you only need the first byte). The first longword in the FPT is the number of functions + 1.

4) Allocate some memory the size of the first entry in the FPT \* 4 (since each entry is four bytes long). This memory must remain locked or fixed (I recommend fixed) and it must stay around even if your initialization file disappears, so if you're patching the Toolbox from a Control Panel boot function or a Temporary Init file, be sure to get a new memory ID for this memory. This memory will contain a new FPT that the Tool Dispatcher will use.

5) Fill the memory you just allocated with zeros.

6) Copy the first longword in the FPT to the first longword in the memory you just allocated.

7) Patch the BootInit entry (entry number one) to point to a routine that will return with the accumulator set to zero and the carry flag clear. The reason for this is because when SetTSPtr is called in step 9, the BootInit function will be called. When LoadOneTool was called from step 1, SetTSPtr was automatically called and the BootInit function for the tool set was already executed. The BootInit function is not meant to be executed more than once, so you must patch it out to do nothing.

8) Fill in additional entries in the memory you just allocated to point to your patch functions minus one.

9) Call SetTSPtr and pass it the pointer to your new FPT.

10) Call SetDefaultTPT.

## General Theory

Cool Cursor is dependant on the setting of a number of flags: heartbeat interrupt



period, animation flag, pointer list made flag, the active flag, and the started flag. When a normal cursor is being displayed (the pointer cursor or a custom cursor) the heartbeat interrupt period is zero so the heartbeat interrupt task will not be called and the animation flag is zero so a scheduled frame change will not take place.

When `WaitCursor` is called, the active flag is checked to see if an animated cursor should be shown. Also, the started flag is checked to see if `QDAuxStartUp` has been called. If either the active flag or the started flag is false, then the normal wait cursor routine is called to show the watch cursor. If both the started and active flags are true, then the pointer list flag is checked to see if a list of pointers to each cursor frame has been made. If the list has not been made, then one is generated. If the address to the real watch cursor has not been found, then the active flag is set to false so the real watch cursor will be displayed, `HideCursor` is called so no cursor will be shown, `WaitCursor` is called again to display the watch cursor (but since `HideCursor` has been called, nothing will show on the screen), and the address of the watch cursor is saved. The heartbeat interrupt task is then set to the speed of the animation, the animation flag is set, and the first frame of the animated cursor is shown. The active flag is checked to see if `HideCursor` had been previously called, and if so, the active flag is set and `ShowCursor` is called to display the new cursor frame.

When the heartbeat interrupt task is called, a task is scheduled (using the Scheduler's `SchAddTask`) to show the next frame of the animation. The heartbeat interrupt period is *not* reset at this time. When the scheduled task is run, the animation flag is checked to see if it is set. If it is clear then nothing happens. If it is set then the next frame of the animation is shown and the heartbeat interrupt period is reset to the speed of the animation. The reason the animation flag is checked during the schedule task is because a `SetCursor` call may have been made between the time of the interrupt and the time the scheduled task is run, and if so the next animated frame must not be shown.

When `SetCursor` is called, the cursor address is checked against the address of the watch cursor. If they are not the same, then the heartbeat interrupt period is zeroed and the animation flag is cleared. (The scheduled task to show the next cursor always sets the animation flag after showing the next cursor frame since `SetCursor` always clears it.) If the cursor address to set is the same as the watch cursor, then the animation flag is checked to see if the animated cursor is already being displayed, and if so the `SetCursor` routine is done. If the animation flag is clear, then `WaitCursor` is called to display the animated cursor. The reason for all this trouble with `SetCursor` is because there are cases when programs will all `GetCursorAdr` to get the address of the current cursor, call `SetCursor` to set a cursor of their own, and then call `SetCursor` again to restore the previous cursor. The patches for `SetCursor` and `GetCursorAdr` (which returns the address of the watch cursor if the animation flag is set) retains the animation through that sequence of calls.

The patch on `GetCursorAdr` simply checks the animation flag to see if the animated cursor is already being displayed, and if so, the address of the watch cursor is returned. Otherwise the real `GetCursorAdr` function is called. This allows the `GetCursorAdr`, `SetCursor`, `SetCursor` sequence discussed above to behave properly.

The patch on `QDAuxStartUp` sets Cool Cursor up to animate the wait cursor. To do this, the cursor frames and all control information memory is locked, the address of the watch cursor is zeroed, the heartbeat interrupt task is installed, and the started flag is set. The patch on `QDShutDown` clears the started flag, stops any animation that may be in progress, removes the heartbeat interrupt task, and unlocks all the cursor frame and control information memory.

### The Control Panel

One of the reasons Cool Cursor is so nifty is because despite all the detailed and technical programming, the user interface is simple, it's easy to install and remove

Cool Cursor data files, and it's easy to choose a new cursor to animate. It's the job of the Control Panel (CDev) to provide such ease of use.

For the most part, the comments in the `CoolCursor.CC` file should give an accurate description of what's going on. I'll discuss some rather interesting points from some selected routines, though.

### Boot Message

At boot time, the Toolbox patch code is loaded in and the Toolbox is patched. Also, a message is posted which contains the address of the patch code data area so flags can be changed later. The Toolbox patch code is loaded by making a call to `InitialLoad2` on a the patch code resource that was already loaded without the default code converter being called. A new memory ID is passed to `InitialLoad2` so that the patch code will stay around after the control panel is done. When System 6 hits the street, this should no longer be necessary because of a new call that will change the memory ID associated with a particular handle.

### Init Message

If the Toolbox patch code has been installed, the init section calls the `BuildCursorList` function to build an internal list of cursor names and the files they are associated with from the `*:System:CDevs:Cursors:` directory. Next, a member list is created from the internal cursor name list, and `NewList2` is called to put the new list in the list control. Finally, the current cursor file is selected by loading in the default cursor name and calling the `FindFileFromName` function with the `SelectItemFlag` set.

For more information on how to use the List Manager, see the *Apple IIGS Toolbox Reference: Volume 1* and "The New Order" article from *GS+ V2.N4* and "RamNamer v2.0" from *GS+ V3.N2*.

### Create Message

If the Toolbox patch code has been installed, the create section finds the pointer to the patch code data area and creates the main controls for the control panel. If the Toolbox patch code has not

been installed, a LEReTextBox2 control is created that displays a message telling the user to put the control panel in the \*:System:CDevs: directory and reboot.

### Hit Message

For the most part, what a control hit does is pretty obvious (the Active checkbox is tied to the active flag, the speed field is tied to the speed variable, and the two buttons call WaitCursor and InitCursor). However, a hit on the list control takes a bit of processing. First, the name of the cursor selected is found. The current cursor frames and the cursor frame handle lists are then disposed of. The filename associated with the cursor name is found, and the LoadCursor function is called to load in the new cursor. The CursorSetup routine from the patch code is called to make sure the correct cursor for the current video mode is set, and the new cursor name is set as the default name.

### C/ORCA. C/ORCA BUGS. C/ORCA CRASH.

During the development time of Cool Cursor, I found two bugs in ORCA/C. The first bug was with the InitialLoad2 tool glue. The tool glue was for the InitialLoad call, not InitialLoad2. The second bug I found was that when I set the optimize pragma to -1, Cool Cursor would crash. Nasty, nasty, nasty.

### C/ORCA Work

Well, if you'll notice, Cool Cursor works despite those rather nasty bugs. The reason for this is twofold: I didn't use the

optimize -1 pragma, and I fixed the tool glue myself. I used an old version of MakeLib to pull out the toolglue object code from the ORCALib library file, then I used the ORCA/Disassembler to disassemble the InitialLoad2 tool glue. I made a source code file from the disassembly, and then I added two lines to fix the tool glue. Rather than making a new library with my tool glue fix, I opted to just link in the object code from my new source code file. You can find the tool glue fix in the IL2.ASM file. (Oh yes, Byte Works knows about the InitialLoad2 tool glue problem, and a permanent fix should be out with the next release of ORCA/C.)

### See The OS Library Not Work

I found a really stupid bug in my OS Library (OSLib) while trying to create the list of cursors. No cursors would show up in the list. At first I thought I had programmed the Cool Cursor portion wrong, but after some rather surprising sessions with GSbug, I found that the parameter count for the GetDirEntry GS/OS call was wrong in OSLib! However, the actual parameter block was the correct size. Apparently, while developing the OSLib, I set a new size on the parameter block, but I forgot to change the parameter count. So, if anyone has been using an old version of the OS Library's GetDirectory call, you probably found that bug, too. The new version of OSLib fixes this bug, and it also has a change so that if the Open call on the directory fails, then the routine exits immediately instead of making a futile call to GetDirEntry.

### Hey, Remember Me?

Cool Cursor has a lot of data to keep up with. I've already discussed the important flags (heartbeat interrupt period, animation flag, pointer list made flag, the active flag, and the started flag) so now I need to discuss what else is being retained. Figure 1 will help you to see what is going on in memory.

Whenever a cursor is loaded, each frame is loaded to a different handle, and that handle's auxiliary ID is set to \$200. This allows quick purging of all cursors in memory by a DisposeAll (ID | 0x200). A list of each set of cursors (640 mode and 320 mode) must also be maintained, so a handle to a list is kept. The cursor lists start with a word, which is the number of cursor handles to follow, and then the handles to the different cursor data frames.

In a similar nature, a list of all the cursor names, and the filenames that correspond to the cursor names, is maintained. The first word in the list is the number of cursors, and the following handles point to either the cursor name or the cursor filename. Two separate lists are maintained, and entry one for the cursor names list equates to entry one for the cursor filenames list—a one to one relationship.

So what are you still reading this for? Go try the Cool Cursor Control Panel out! (And don't forget, if you have any questions, comments, or bug reports, let me know about them.) GS+

Figure 1  
Cool Cursor Memory At A Glance

| <u>AuxID</u> | <u>Used For</u>                                                                                                                                                           |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ID   0x000   | Program code and new FPT memory<br>(this memory will always be fixed)                                                                                                     |
| ID   0x100   | Pathname to the :Cursors directory<br>640 and 320 mode cursor handle lists<br>The current cursor's pointer list<br>Cursor name handle list<br>Cursor filename handle list |
| ID   0x200   | Cursor data                                                                                                                                                               |
| ID   0x300   | Cursor names<br>Filenames                                                                                                                                                 |

Over the last two and a half years, we've duplicated a lot of disks here at *GS+* Magazine. During that time, we've used the Finder, ZZ Copy, and Photonix II to duplicate our disks. The Finder was too awkward for mass-producing disks, and ZZ Copy and Photonix II were both 8-bit programs that had their own quirks that, quite literally, drove us up the wall. (Photonix II for example required that you turn off AppleTalk simply to run it and you had to reboot your computer after you were finished using it—you could not just quit back to your program launcher.) Worst of all, you can only insert one target disk at a time, which means that you have to sit with each of these programs while they duplicate disks. (If you think it takes a long time to duplicate a disk with *any* program, just try duplicating 100 disks with it while trying to, say, stuff envelopes or apply disk labels. You won't believe how little time you have between disks.) If you have more than one disk drive, you can't just put a disk in each drive and walk away.

As *GS+* Magazine grew, it became more and more of a pain to copy all of the disks we needed for each issue. So, we began to investigate the purchase of a professional disk-duplicator: the low-end models (which can do up to two disks at once) cost about \$2,000. The high end models (you dump 100 disks into a bin and walk away from it) cost about \$6,000. There had to be a better way. There wasn't, so we decided to make one ourselves.

## A Better Way

Replicator is a disk copying program. "Oh boy," you think to yourself, "yet *another* senseless disk copying program." Well come on now, you should know *GS+* Magazine better than that! Would we throw you just any old disk copy program? Or course not! There has to be something special about this disk copy program, right? Right! Replicator is a desktop GS/OS disk copying program, for one thing. That means you

can launch it from the Finder, and even quit back to the Finder when you're done. That alone should be worth well over the price you paid for the disk, right? How much over the price? Well don't answer yet! You even get a free smokeless ashtray! [Not! - Editor.] Replicator isn't the fastest disk copy program around, but it does offer some unique copying ideas: Replicator makes copies to devices that you select, not just 3.5-inch disk drives. You can copy RAM disks, ROM disks, and even hard drives (provided that you can fit all the contents of the disk into your IIGS's memory). Replicator will make copies to multiple target devices, not just one. For example, you can select two 3.5-inch disk drives and a RAM disk to write copies to, and Replicator will be happy to comply. In the last example, if you were making more than three copies, Replicator will eject the two copied 3.5-inch disks and wait for you to put more disks in—in *either 3.5-inch disk drive!* So how's that?

## Prerequisites

We recommend running Replicator from a IIGS with a hard drive and *at least* 1.5MB RAM. (The Feedback forms we've been getting show that most of you out there have this type of setup.) With this setup you can copy disks up to 800K in size (namely 3.5-inch disks). Replicator can be run from a system with only one 3.5-inch drive, 1.5MB RAM and a 64K RAM disk but we don't recommend it. Why do these restrictions exist? Well, when Replicator copies a disk, it first reads the entire disk contents into memory. That means if you're trying to copy an 800K 3.5-inch disk, you will need at least 800K of *contiguous* free RAM for the disk image to occupy. Another constraint on copying is imposed because Replicator uses resources. Every time a dialog has to be displayed, the dialog information has to be loaded from Replicator's resource fork. This can cause some major trauma if you're working on a one drive system. To get around this problem, we recommend that you create a 64K RAM disk, copy Replicator to the RAM disk,

and then launch Replicator from the RAM disk. However, if you're tight on memory, that 64K RAM disk might take away the memory needed to make a copy (on a ROM 01 IIGS with 1.5MB of memory, this problem exists.) To combat this problem, create a fresh System Disk (no doubt if you're working with one drive and small memory constraints you work with a clean disk often) and install Autopilot (*GS+* V3.N1) on your new System Disk. Set Autopilot to autolaunch Replicator from the RAM disk. Almost makes you want to go out and buy some more memory and a hard drive, doesn't it?

Also, while Replicator can copy any GS/OS disk that will fit into memory, we do *not* recommend using it to copy 5.25-inch disks to other 5.25-inch disks. However, you can use it to copy a 5.25-inch disk to a larger device (like an 800K disk) quite easily.

## Your First Copy

To copy a disk, you first have to read the source disk contents into memory. You do this with the "New..." menu item in the "File" menu. Once you select "New...", you will be presented with a dialog which allows you to choose which volume you wish to read into memory. You can also eject any selected volumes with the eject button, and you can force a rescan for volumes with the rescan button. After you have chosen which volume you wish to copy, the disk contents will be read into memory (if you have enough free RAM that is) and a *disk window* is displayed on your desktop.

The disk window contains some information about the volume you want to copy, some duplication parameter controls, and a comment box. Right now, only the duplication parameters are significant. The duplication parameter controls let you tell Replicator how many copies to make or to make copies until you manually cancel the duplication cycle. For this example, just use the default: make one copy.

To make a copy of the disk you just read into memory, select the "Duplicate..." item from the "Disk" menu. You will then be presented with a dialog similar to the one which let you choose a source volume, except that this dialog lets you choose destination *devices* instead. Notice that there's no rescan button in this dialog, as it is only pertinent to dialogs which let you select a volume. You may choose more than one device now by holding down the shift key and clicking on a device (to select a range) or by holding down the Command key and clicking on a device (to individually select or deselect a device.)

When you have chosen all the devices you want to make copies to, Replicator will display a *duplication statistics* window and begin writing out copies of the source disk. If there are no disks in the drive when you select "Duplicate..." then you will be prompted to insert a disk into a drive. Replicator will only make copies to devices that you have selected. You may cancel the duplication process at any time by typing Command-period.

### Opening And Saving

Replicator has the ability to save the disk image that you have loaded into memory. It may not be blatantly obvious why such a feature is useful. One such case where it would be useful is if you have to make a copy of a 3.5-inch disk on a regular basis. It takes a long time to load an initial image of the disk, so to speed things up, you can load the disk image in once and save it out to a hard drive. The next time you want to make a copy of that disk, you can simply open the disk image from the hard drive and the load time will be cut dramatically. Any comments you have typed into the disk window's comment box are saved out with the disk image, along with the current state of the duplication statistics controls. When System Software 6.0 is finally released, these same comments should be directly editable from the Finder.

### Replicate Preferences

Replicator has the ability to provide as much, or as little, protection from mistakes as possible. You configure how

Replicator works with the "Preferences..." menu item found in the "Edit" menu. When you choose the "Preferences..." menu item, a preferences dialog window will appear allowing you to tailor how Replicator will work for you.

The first preference, "Duplicate on exact size devices only," controls which devices will be selectable when you choose the "Duplicate..." menu item. If this preference is checked, you can only make copies onto devices of the same size as your source device (i.e. if your source disk is an 800K 3.5-inch disk, you can only make copies to devices that are exactly 800K in size). If this preference is not checked, you can make copies onto devices of the same size as your source device, or *bigger* sizes (i.e. if your source disk is an 800K 3.5-inch disk, you can make copies to devices that are 800K in size or larger). With this option turned off, you can effectively kill your hard drive if you accidentally choose the wrong device to make copies to—we found this out the hard way. Be careful!

The second preference, "Format media only when necessary," tells Replicator how to handle the formatting of disks when you are duplicating. If this preference is checked, Replicator will not format a disk unless it has not previously been formatted, a formatted disk is formatted at the wrong size (i.e. an 400K 3.5-inch disk is inserted into an 800K 3.5-inch disk drive,) or a formatted disk is formatted at the wrong block size. With this option turned off, Replicator will *always* format target disks whether they have been previously formatted or not.

The last preference, "Prompt on formatted target disks," controls what happens when Replicator is about to write information to a disk that has been previously formatted. If this preference is checked, Replicator will ask you if you want to overwrite the current disk. With this option turned off, Replicator will *never* tell you that you are about to destroy information on a disk that has been previously formatted.

The three buttons at the bottom of the preferences dialog window let you tell

Replicator what to do with the preference settings that you have in the preferences dialog window. If you select Cancel, any changes you have made to the preferences will be thrown out. If you select Okay, the preference settings that you have in the preferences dialog window will become the current preferences. If you select Save, the preference settings that you have in the preferences dialog window will be saved into a *Replicator preferences* file. The next time you use Replicator, the preferences that you saved will be loaded in when Replicator starts up.

### Other Features

In addition to copying disks, Replicator can display some interesting information on devices and volumes. If you want to find out information on a device, choose the "Device Information" menu item from the "Disk" menu. You will be presented with a dialog asking you to choose a device to get information on. Once you have chosen the device you want information on, Replicator will display a *device information window* that contains information about the device you selected.

If you want to find out information on a volume, choose the "Volume Information" menu item from the "Disk" menu. You will be presented with a dialog asking you to choose a volume to get information on. Once you have chosen the volume you want information on, Replicator will display a *volume information window* that contains information about the device you selected.

The ability to format and erase devices are the two last features of Replicator. They are each selectable from the "Disk" menu. You will be presented with a dialog asking you to choose a device, and then Replicator makes an operating system call to either format or erase the device you selected. With System Software v5.0.4, the disk you format will be called **:Untitled**, and the volume's name will stay the same when you choose erase. When System Software v6.0 comes out, you will be allowed to edit the name of the volume you wish to format or erase.

### Source Code

Replicator is a project that was started

using ORCA/Pascal. As the project grew, a smattering of C and assembly language was thrown in. The final project is around 40 lines of ORCA/M assembly code, about 300 lines of ORCA/C code, approximately 2,700 lines of Rez code, and close to 3,000 lines of ORCA/Pascal code. Hopefully, this will satisfy those of you that have been asking us for programs written with ORCA/Pascal!

The assembly language code is a GS/OS notify procedure which gets control whenever a disk insert or disk eject is detected. The C code routines deal primarily with building the list of devices and volumes. The Pascal code routines are the heart of Replicator. For more detailed technical information on Replicator, see the **RepTech.Docs** file on your **GS+** Disk.

### Happy Replicating!

We admit that Replicator isn't the fastest disk copy program around, but it is extremely versatile. As you might guess, your **GS+** Disk was copied using Replicator. If you have any ideas for features that you'd like to see added to Replicator we'd love to hear about them! Also, if you find that Replicator isn't working the way it's supposed to, please fill out the problem form supplied on your **GS+** Disk and send it in so that we can track down the problem. Happy Replicating! **GS+**

# Replicator Menu Reference

The following is a reference to all of the items in the Replicator menus and a brief explanation of what each item does.

## Apple Menu

"About Replicator..."

This item brings up a window giving version and copyright information about Replicator.

Underneath this item, you will find the Control Panel NDA and all of your other New Desk Accessories.

## File Menu

"New..." (Command-N)

Selecting this item brings up a dialog that allows you to select a disk to read into memory. Simply double-click on the disk you want to read and, if you have enough memory, Replicator will read the disk into memory. If the disk you want to read is not in any drive, insert it and Replicator should redisplay the list of disks you can choose from. If the disk doesn't show up, click the Rescan button (or press Command-R) to force Replicator to rebuild the list. If you need to eject a disk, select the disk in the list and click on the Eject button (or press Command-E).

Note that Replicator will not eject hard disks, RAM disks or any other disk that

cannot be physically ejected. It will, however, allow you to logically eject removable hard disk cartridges (the drive will spin down, but it's up to you to actually remove it from the drive) and 5.25-inch disks or log you off from a file server.

After a disk is read into memory, Replicator will display a disk window containing information about the disk just read. Disk windows can be identified by the light-blue stripes in the title bar. The first line of the disk window shows the file system that the disk was formatted for. The next line tells you the total number of blocks on the disk. The third line tells you the size (in bytes) of each block. So, for a "standard" 800K 3.5-inch disk you should see a block count of 1600 and a block size of 512.

The next two items in the window let you tell Replicator how many copies of this disk you want to make. If you want to make 10 copies, just click on the "Number Of Copies:" line edit item and type "10". If you want to make a bunch of copies, click on the "Mass Copy" radio button.

Below these two items is a TextEdit control into which you can type comments about the disk.

"Open..." (Command-O)

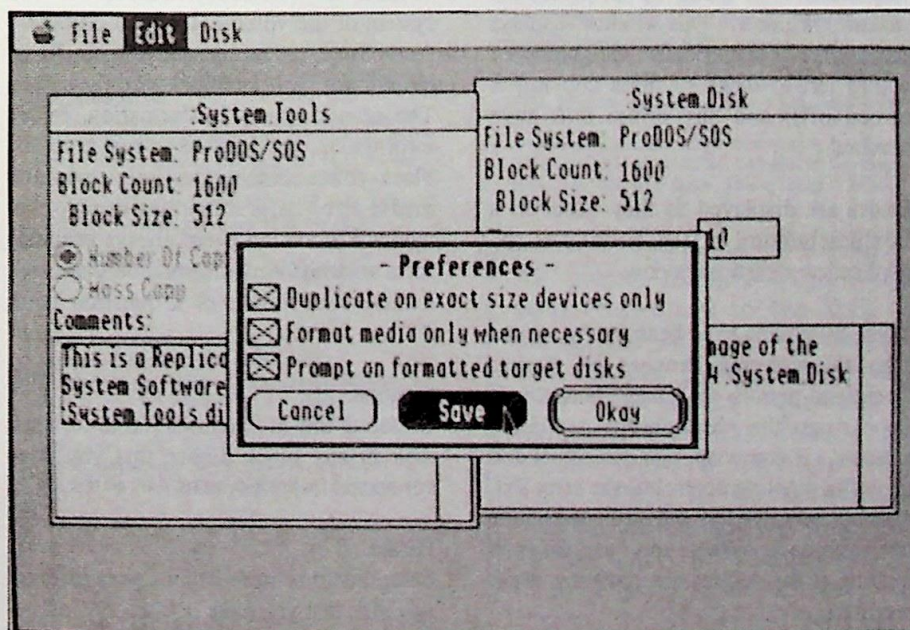
Selecting the Open item presents you with a Standard File dialog that you can use to select a Replicator document to open. When you select a document, the disk image, comments, and number of copies to make are loaded from disk and displayed in a disk window just like the one discussed above.

"Close" (Command-W)

Selecting this item closes the topmost window. If the window is a disk window that has been changed, Replicator will ask you if you want to save the changes.

"Close All"

Choosing this item closes all open windows.



#### "Save" (Command-S)

This item saves the current disk window. If the contents of the disk window have not previously been saved, you will be presented with a dialog allowing you specify a disk to save the contents of the disk window and a file name to use. The default file name is the volume name of the disk that was read in.

#### "Save As..."

Selecting this item allows you to save the contents of the disk window under a new name.

#### "Quit" (Command-Q)

This item closes all open windows and quits Replicator, returning you to the program that you launched Replicator from.

#### Edit Menu

Replicator does not use any of the standard Edit menu items (Undo, Cut, Copy, Paste, or Clear). These items are included only for use by any New Desk Accessories that you may have.

#### "Preferences..."

Selecting the Preferences item brings up a dialog that allows you to tell Replicator how it should handle certain situations. (See photo on previous page.)

The first preference, "Duplicate on exact size devices only" prevents Replicator from writing to devices that are larger than the source device. For example, if you turned this preference off, you could read in a 140K disk and copy it to an 800K floppy. You could also copy it to your favorite 32MB hard drive partition! Be very careful when you turn this preference off!

The second preference, "Format Media only when necessary," allows you to skip the time-consuming process of formatting if your target disks are already formatted. If this preference is turned off, Replicator will *always* format the target disk before writing to it.

The third preference, "Prompt on formatted target disks," tells Replicator if you want it to ask for permission when it encounters a target disk that is already

formatted. If this preference is checked, Replicator will always ask you for permission to write to a disk that was previously formatted. If this preference is not checked, Replicator will automatically write to the disk, destroying its previous contents.

[Editor's Note: Replicator is a powerful tool. Like all "power tools" it can be dangerous if you don't pay attention to what you are doing. Replicator is shipped with all of the above preferences turned on. This gives maximum protection from copying to any disks that you did not mean to copy to. However, accidents probably will happen (we inadvertently managed to turn a 10MB hard disk partition into an 800K hard disk partition during the development of Replicator), so I just want to remind you that you are using Replicator at your own risk. GS+ Magazine and EGO Systems will not be held responsible for any data loss or damage that occurs while using Replicator. After all, did you sue Sears the last time you smashed your thumb with a Craftsman hammer?]

#### Disk Menu

##### "Duplicate..." (Command-D)

Selecting this item presents you with a dialog asking you to choose all the devices you wish to make copies to. After you have selected all the devices you want to duplicate to and hit the Okay button, Replicator will bring up a *duplication statistics* window. This window displays the number of copies made, the number of copies left to make (if mass copying is turned off), and any errors that have occurred.

Errors are displayed as they occur in a TextEdit control at the bottom of the duplication statistics window.

When all copies have been made, or you stop the copying process by typing Command-period, an "Okay" button will appear in the duplication statistics window. If you wish, you can select and copy (by pressing control-c) the error list, paste it into EGOed and print it out for later reference. When you have finished looking at the duplication statistics, press return to get rid of the window.

#### "Device Information..."

Selecting this item presents you with a dialog asking you to choose a device to get information on. Once you have chosen the device you want information on, Replicator will display a *device information window* that contains information about the device you selected. Device information windows can be identified by the red stripes in the title bar. The device information window shows the device type, device number, slot number (the first number is the GS/OS slot, the number in parenthesis is the physical slot), unit number, device driver version and maximum number of blocks the device can be formatted at (character devices will have a zero in this field. The last item in the device information window is a list of the device characteristics. Items in this list that are dimmed do not apply to the device.

#### "Volume Information..."

Selecting this item presents you with a dialog asking you to choose a volume to get information on. Once you have chosen the volume you want information on, Replicator will display a *volume information window* that contains information about the volume you selected. Volume information windows can be identified by the purple stripes in the title bar. The volume information window shows two types of information about the volume. The first, generic volume information, includes the file system of the volume, the total blocks on the volume, the number of free blocks on the volume, and the block size (in bytes). The second type of information, media information, includes the format type, the block count, block size, interleave, and media size. It is important to note that media information is not always available for a volume. Any information that is not available is shown as a question mark ("?").

#### "Format..."

Selecting this item allows you to format a disk in any block device that you have connected to your system.

#### "Erase..."

Selecting this item allows you to erase any disk that you have online. GS+

# GS+ Back Issue Information

## Sep-Oct 1989 (V1.N1)

• \$4.50 mag • \$6.50 disk • \$9.50 both

- System Software 5.0 Compatibility Chart
- NoDOS - A file utility New Desk Accessory complete with ORCA/C source code on disk
- Graphics Galore - Drawing "how-to" with 3 pictures on disk
- Reviews of Arkanoid II (new custom levels on disk), Crystal Quest, ORCA/C, Rocket Ranger, Silpheed, Test Drive II, TransWarp GS, Turbo Mouse ADB
- PLUS: Graphics, rumors, and the most over-hyped product of the year!

## Nov-Dec 1989 (V1.N2)

• \$6.50 disk (magazine is sold out!)

- EGOed - An NDA text editor (TML Pascal II source code on disk)
- Brush with Greatness - Tips on drawing faces (pictures on disk)
- PLUS: Original icons and new levels for Laser Force on disk

## Jan-Feb 1990 (V1.N3)

• \$6.50 disk (magazine is sold out!)

- Rotator - A beginner's desktop programming tutorial and program w/source code written in ORCA/C
- Winning Arkanoid II Levels
- Brush with Greatness - Space graphics (pictures on disk)
- HyperStudio stack version of GS+ V1.N2 on disk.

## Mar-Apr 1990 (V1.N4)

• \$6.50 disk (magazine is sold out!)

- All About Control Panel Devices - with Desk Color CDev and ORCA/C source code on disk
- Random IIGS Programming Notes - An EGOed update
- Brush with Greatness - Architecture on your IIGS with pictures of the CitiCorp building and Frank Lloyd Wright's house on disk

## May-Jun 1990 (V1.N5)

• \$4.50 mag • \$6.50 disk • \$9.50 both

- AppleFest Report
- Beginner's Guide to System Disks - Part 1
- GS/OS prefixes - PreFixer CDev and ORCA/Pascal source code on disk
- Brush with Greatness - How your IIGS makes colors
- Reviews of CMS SDRM 45 Megabyte Removable Hard Drive, S&S-RAMCard, DataLink Express modem, Visionary GS digitizer, GraphicWriter III, ZapLink, McGee, Math Blaster Plus IIGS, The New Talking Stickybear Alphabet, a sneak peek at the ZipGS

## Jul-Aug 1990 (V1.N6)

• \$4.50 mag • \$6.50 disk • \$9.50 both

- KansasFest Report
- Beginner's Guide to System Disks - Part 2
- Translusion - An NDA terminal program (ORCA/C)
- Reviews of AMR AS800K 3.5-inch drive, Salvation: The Exorciser, Disk Access, MD-BASIC, Katie's Farm, Task Force, BLOCKOUT, OMEGA, 2088: The Cryllan Mission, Hunt for Red October, Revolution '76, Where in the U.S.A. is Carmen Sandiego?

## Sep-Oct 1990 (V2.N1)

• \$4.50 mag • \$6.50 disk • \$9.50 both

- Brush With Greatness - making the most of your digitizer
- Interview with Brian Greenstone (programmer of Xenocide)
- PING - video table tennis program (Merlin assembly)
- Shuffle - an Irit file that allows you to move desktop windows from the foreground to the background (ORCA/M)
- Battery Brain - CDev saves BRAM parameters to disk (ORCA/C)
- Reviews of GS Sauce memory card, Salvation: Wings, World GeoGraph, Orange Cherry Talking Schoolhouse series, QIX, Solitaire Royale, InnerExpress

## Nov-Dec 1990 (V2.N2)

• \$6.50 disk (magazine is sold out!)

- LaserWriting - LaserWriter fonts on disk
- TeachText Translator - import and export TeachText files in GIII
- GS+ program updates - EGOed v1.32, Transfusion v1.1

## Jan-Feb 1991 (V2.N3)

• \$4.50 mag • \$6.50 disk • \$9.50 both

- AppleFest/Long Beach '90 and the Apple II Achievement Awards
- Interview with Jim Carson of Vitesse, Inc.
- Introduction to System Software v5.0.4
- RAM Namer - a CDEV that can rename your RAM disk at boot time, with ORCA/C source code on disk
- GS+ program updates - Battery Brain v1.1, EGOed v1.32c (now written in ORCA/C), GIII TeachText Translator v1.1
- Reviews of ZipGSX, LightningScan, Design Your Own Home, Print Shop Companion IIGS, Your IIGS Guide, Dragon Wars, 2088: The Cryllan Mission - Second Scenario, Space Ace, Sinbad and the Throne of the Falcon

## Mar-Apr 1991 (V2.N4)

• \$4.50 mag • \$6.50 disk • \$9.50 both

- Interview with Dave Hecker of Seven Hills Software
- Working with the Toolbox - Part 1: The Tool Locator
- Quick NDA - an init that can assign control-keypad equivalents to your New Desk Accessories, with ORCA/M source code on disk
- The New Order - a NDA that can reorder the contents of your directories, with ORCA/C source code on disk
- GS+ program updates - EGOed v1.33, Transfusion v1.1.1
- Reviews of Harmonie, Independence, InWords, Allison Digitizing Software, MAX/Edit, Software of the Month Club, Super GS Award Maker, Talking Speller II, Halls of Montezuma

## May-Jun 1991 (V2.N5)

• \$4.50 mag • \$6.50 disk • \$9.50 both

- Interview with Matt Deatherage of Apple DTS
- Working with the Toolbox - Part 2: The Memory Manager
- Autopilot - A program launcher with ORCA/M source code on disk
- Softlock - A password protection NDA with ORCA/C source code on disk
- GS+ program updates - EGOed v1.34, NoDOS v1.5
- Reviews of TMS Pro R45 Removable Hard Drive, RamFAST/SCSI Card, HyperCard IIGS vs. HyperStudio, McGee at the Fun Fair, Talking Classroom, Talking Multiplication and Division, Bouncing Bluster II, Space Shark, Transylvania III

## Jul-Aug 1991 (V2.N6)

• \$6.50 disk (magazine is sold out!)

- MacZombies - A game written by Bill Heineman with Merlin source code on disk
- Watchdog - A GS/OS notification CDev with ORCA/C and ORCA?M source code on disk
- HyperActivities - Address book stack for HyperCard

## Sep-Oct 1991 (V3.N1)

• \$4.50 mag • \$6.50 disk • \$9.50 both

- Protecting Your Investment - A Guide to Surge Protection
- A Conversation with Roger Wagner - Part 2
- Working with the Toolbox - Part 4: QuickDraw II
- FGS (Fractal Graphics & Such) - A Fractal Generator written in ORCA/C
- GS+ program updates - EGOed v1.36, Autopilot v1.1, NoDOS v1.6
- Reviews of two 100MB hard drives, Nite Owl Slide-On Battery, ORCA/Integer BASIC, ORCA Talking Tools, Storybook Weaver: World of Adventure, HyperBole, HoverBlade, Shareware: DeskTop Painter, SoundSmith, IIGS Classic: The Bard's Tale IIGS

## Nov-Dec 1991 (V3.N2)

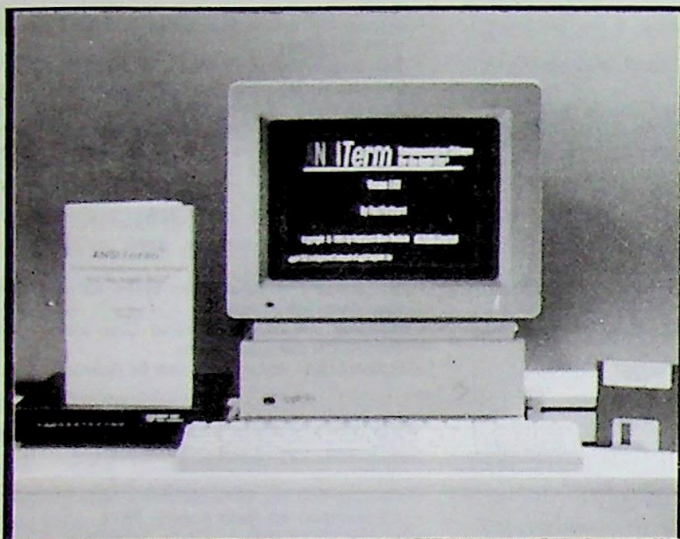
• \$4.50 mag • \$6.50 disk • \$9.50 both

- How Fonts Work - an article by Matt Deatherage
- Working with the Toolbox - Part 5: The Event Manager
- Introduction to 3-D Graphics - with demo program written in ORCA/C on disk
- Buying Used IIGS Equipment
- AutoSave - NDA written in ORCA/M that periodically saves documents on the IIGS desktop
- GS+ program updates - EGOed v1.37, NoDOS v1.7, RAM Namer v2.0
- Reviews of Octo-RAM Memory Board, DataLink II Express, Talking First Words, Talking Cloze Technique Greek Mythology, Shareware: CosmoCADE, Star Trek Classic

All prices include \$1.50 postage and handling (orders will be sent First-Class to the U.S., Air Mail to Canada and Mexico, and surface to all other countries. For Air Mail to all other countries, add \$5 per issue). Tennessee residents add 7.25% sales tax. Mail back issue requests to: **GS+ Back Issues, c/o EGO Systems, PO BOX 15366, Chattanooga, TN, 37415-0366; or call 1-800-662-3634, Monday through Friday between 9 a.m. and 6 p.m. EST, to verify availability. Please include your phone number on all orders placed by mail (in case we are sold out of an issue)! For MasterCard or VISA orders placed by mail, also include your card number, expiration date, and signature.**

# Color ANSI Emulation

for your  
**Apple IIGS!**



Introducing

## ANSITerm

*A New Dimension in Telecommunications!*

Finally, telecommunications software that takes advantage of the color in your Apple IIGS! ANSITerm Telecommunications Software is powerful and easy-to-use. Now you'll see what your modem was MEANT to do!

### The Emulations You Need

ANSITerm provides support for color PC-ANSI emulation, including the complete PC character set. Now, you can call PC-based bulletin board systems and other BBSs and see colors, line drawing, and other special symbols AS THEY WERE MEANT TO LOOK. ANSITerm also supports "Special" emulation used in many Apple II-based terminal programs and supported on most Apple II-based bulletin boards.

### Powerful File Transfers

ANSITerm supports all standard file transfer protocols, including:

- ASCII Text
- Xmodem Standard, Xmodem-CRC/1K/4K
- Ymodem and Ymodem Batch
- Zmodem

ANSITerm also supports an optional ProDOS-style information footer for xmodem-CRC/1K/4K, as well as both MS-DOS- and ProDOS-compatible ymodem and zmodem headers. Zmodem features include a 16K streaming file buffer, CRC-32, skip/restart/rename ability, and auto-receive. Other features include auto-Binary II extraction and MS-DOS file name validation.

### Color Scrollback

ANSITerm provides up to 65,000 lines of scrollback so you can review text which has gone off the top of your screen. Scrollback also displays color and PC characters for ANSI emulation and mousetext characters for "Special" emulation.

### High-Speed Modem Support

ANSITerm supports most every modem type, including several special drivers for high-speed modems, such as the USRobotics HST, Hayes V-Series, and Intel 9600ex. Baud Rates can optionally be fixed at 19,200 or 38,400 baud to get the best throughput from your high-speed modem.

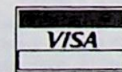
### Dialing Directory

Up to 34 different systems and services can be stored for easy access and auto-dialing. Information stored for each includes baud rate (110 to 38,400 baud), emulation, data format, and up to a 16-digit phone number. Auto-dialing is fast and efficient and includes support for both verbal and numeric results, "busy" detection and more.

# Only \$69.00!

To order, call:

## (510) 837-9098



Price based on cash purchase. Or, send check or money order for \$69 plus \$3 shipping and handling to Parkhurst Micro Products, 2491 San Ramon Valley Blvd, Suite 1-317, San Ramon, CA, 94583. CA residents, please add 7 1/4% sales tax plus any local sales tax. Allow 10 days for delivery. If paying by personal check, allow 3 weeks for delivery. Foreign orders, please add \$6 for shipping and handling. Payments must be made in US funds drawn from a US bank.

**PMP** Parkhurst Micro Products

2491 San Ramon Valley Blvd • Suite 1-317 • San Ramon, CA 94583  
Phone: (510) 837-9098 • BBS: (510) 820-9401

All products are trademarks of their manufactures



## The French Connection

For the last several years, France has been a source of some of the best IIGS shareware and public domain software. The Free Tools Association (FTA—Best known for the Nucleus Demo), Miami Beach Productions (a.k.a. the “French United Cracker’s Klan”—Best known for ZZCopy) and ToolBox Mag (a.k.a. “The Second Apple IIGS Magazine + Disk Publication”—Best known for ToolBox Mag and a few programs that they published, like Photonix II) have all been turning out IIGS software that was prone to making jaws hit the floor. Unfortunately, that’s all over now. The FTA has decided to call it quits, as has Miami Beach. As if that weren’t bad enough, ToolBox Mag has also gone under. Apparently the final straw for all of these groups was when Apple France totally stopped supporting the IIGS (it was removed from their price list).

However, our good friend Joe Kohn tells us that, “. . . every cloud has a silver lining! The FTA has amassed nearly 100 disks filled with unreleased products and source code, and those disks will be arriving on these shores shortly. . . . “Easy Dead” is already here. It’s by “PAD” (Dany Bar) and it’s like a cross between Crystal Quest and Arkanoïd. . . . Miami Beach Productions has also decided to call it quits. As a goodbye present, they have given us Sensei GS . . . coming soon to a BBS near you. It’s a phenomenal karate game.” Alas, it would appear that ToolBox Mag does not have any swan-song products.

This rumor originally came to us from Nate Troast (who will get a T-Shirt), but since Joe confirmed this for us, I’ve slipped into the customer database and extended his subscription for an issue.

## Gobble! Gobble!

No, this item isn’t about Thanksgiving, it’s about Big Red Computer Club and how they’ve gobbled up the IIGS titles of yet another publisher that has abandoned the IIGS. As I type this, the ink is drying

on a pact between Big Red and Sierra Online (publishers of the amazingly cool Thexder and about seven or twenty other IIGS titles). The Big Red spokesperson we spokes with tells us that at this point it is unlikely that Big Red will be able to update the software (to fix bugs and stuff like that), but they will be able to sell it at a reduced price.

## The Rumor That Will Not Die!

Just when you thought the rumors about the Apple IIGS Plus (a.k.a. “ROM 04” or “The New II”) had gone away for good, a certain editor at a certain other Apple II magazine, posts a message on a national information service stating that the machine *did* exist after all. According to the post, Apple made the magazine sign a non-disclosure agreement that expired after the machine was released or January 1, 1992, whichever came first. January 1 has come and gone, so this editor decided to set the record straight. Apparently, the machine was due to be announced at KansasFest along with System 6. However, for unknown reasons (one theory is that the machine would have been a Mac LC killer), the announcement—and the machine—were cancelled. While I won’t reveal the editor’s name, I’d like to thank him (or her) for keeping the Apple II community abreast of the *status* of this machine. It is *apauling* that Apple would act this way just to protect the LC.

## So Resourceful!

I don’t know whether to file this one under good news or bad news . . . On the one hand, APDA (the Apple Programmer’s and Developers Association) has stopped distributing all of their Apple II material. On the other hand, the company that will now be responsible for distributing this material is Resource-Central (a.k.a. the publishers of *A2-Central*). It’s bad because it’s another example of how Apple is distancing itself from the II. It’s good because Resource-Central should be able to provide better support for the products and their sales people actually know something about the Apple II

whereas the APDA people I’ve spoken with have had a very limited knowledge of the II. For more info on this turn of events, or to order a product, give Resource-Central a call at (913) 469-6502.

## Any Day Now

No, look, really, System 6 is going to be out any day now (March at the earliest). Honest (He’s lying)! Hey, I’ve just been repeating what beta testers have been telling me (He’s been making it up).

## What’s The Point?

WestCode Software’s “Pointless” software is still vaporware, but it’s *supposed* to be released while this is at the printer. For those of you that haven’t heard about Pointless, it’s a Control Panel that allows you to use TrueType fonts (see “How Printing Works” in this issue for more on TrueType fonts) on your IIGS. All you have to do is get them from a Mac into your IIGS \*:System:Fonts: folder and change the file type. You can then use them just like you would any other IIGS font, except that *any* point size you want will be available! Check the **a.Read.Me** file on your GS+ Disk for any last minute info that we might get on this Pointless story.

## Why All The Fuss?

Some of you may be asking, “Why is Gumby wasting all of this space talking about vaporware?” Well, with the slump that the IIGS market just went through, all of the vaporware we are getting is better than what we’ve been getting, which is NoWare.

## Hey Man!

Got a hot rumor about the IIGS? Well send it in! If we use it here, we’ll either give you a GS+ T-Shirt or extend your subscription for an issue (be sure to tell us which you want—and if you want a T-Shirt, be sure to tell us your size.) Send those rumors, wishes, and blatant lies to:

GS+ Rumors  
P. O. Box 15366  
Chattanooga, TN 37415-0366 GS+

# How To Use The GS+ Disk

The first thing you need to do is **make a backup copy of your GS+ Disk with the Finder!!!** Next, put the original in a safe place. If you are having a problem making a backup copy, give us a call at (615) 843-3988. If your disk is damaged, let us know and we'll get a new one to you as soon as possible.

## Installing The Software

To install the software on this issue's GS+ Disk, start up your computer using System Software v5.0.2 or later (preferably v5.0.4), and then place your backup copy of the GS+ Disk in a drive (You *did* make a backup didn't you?) Now run the Installer program that is on your backup GS+ Disk. (From the Finder, you would double-click on the Installer icon.). *It is extremely important that you use the Installer that is on your backup GS+ Disk! Do not use any other copy of the Installer!* When the Installer window appears, select the item you want to install from the left-hand window, and the disk you want to install it on in the right-hand window. Then click on the Install button. For more information on how to use the Installer, refer to your IIGS owner's manual.

The following is a detailed example of how to install EGOed. The other programs on your GS+ Disk are installed in a similar manner.

- Start up your IIGS with System Software v5.02 or later. (Your GS+ Disk is *not* a startup disk, so don't try starting your computer with it.)
- Insert your backup copy of the GS+ Disk into a drive and run the Installer program that is on your backup GS+ Disk. It is *very, very* important that you run the Installer that is on your backup GS+ Disk and *not* some other copy of the Installer.
- When the Installer finishes loading, click on the Disk button on the right-hand side of the Installer window until your startup disk appears (if you only have one 3.5-inch disk drive, you will have to remove the backup GS+ Disk from the drive and replace it with your startup disk).

- On the left-hand side of the Installer window, you will see a list of the items on the backup GS+ Disk. One of the items in this list should be "EGOed." (If EGOed is *not* in this list, quit the Installer and begin again. Be sure that you are running the copy of the Installer that is on your backup GS+ Disk!) Once you see the EGOed item, click the mouse on it so that it becomes highlighted.

- Click the mouse on the Install button in the middle of the Installer window. The Installer will then install EGOed on your startup disk. If you only have one 3.5-inch disk drive, you may have to switch disks several times. Simply insert each disk as the Installer asks for it.

- When the Installer has finished, click on the Quit button in the middle of the Installer window. This should cause your IIGS to restart.

- When your IIGS finishes restarting, pull down the Apple menu and select EGOed (note that you have to be in a desktop program like the Finder to have access to the Apple menu).

- When EGOed finishes loading, select Open from the EGOed File menu and then insert your backup GS+ Disk into a drive. You should then see a list of the files and folders on the GS+ Disk.

- Open the EGOed folder on your backup GS+ Disk and then open the file EGOed.Docs. This file contains complete documentation on how to use EGOed. Please take a few minutes to read this documentation.

## Making Room

If you do not have a hard drive, you will probably have to remove some files from your startup disk to make room for the New Desk Accessories, Control Panel Devices, and other system files that come on the GS+ Disk. Towards that end, we have prepared the following list of "expendable" files that you can "safely" remove from your startup disk to free up some space. (We've put quotes around "expendable" and "safely" because almost *all* of the files in the IIGS System Software have some sort of use! The files we are presenting here are the ones that are the

"least" useful for a specified hardware setup.) Be sure that you *never* delete *any* files from your original :System.Disk:! Always work on a backup copy!

The standard :System.Disk: has 12K available on it. The following items can be deleted from the root directory of the disk: Tutorial (11K), and AppleTalk (0K).

After this, things get a bit tricky. Other files that you can safely delete depend on your *hardware setup*. If you have a ROM 01 IIGS, you may delete the file \*:System:System.Setup:TS3 (15K). If you have a ROM 03 IIGS, you may delete the following file: \*:System:System.Setup:TS2 (41K).

If you do *not* have a modem, you may delete the following files: \*:System:CDevs:Modem (6K), and \*:System:Drivers:Modem (3K).

If you do *not* have a printer, you may delete the following files: \*:System:CDevs:Printer (6K), \*:System:Drivers:Printer (3K), \*:System:Drivers:Printer.Setup (1K) and \*:System:Drivers:ImageWriter (26K). If you have a printer other than the ImageWriter, you can still delete the \*:System:Drivers:ImageWriter file (unless your printer is an ImageWriter compatible).

If you do *not* have a 5.25-inch drive, you may delete the following file: \*:System:Drivers:AppleDisk5.25 (7K).

Removing some or all of these files should give you ample room (up to 90K on a ROM 01 IIGS and up to 116K on a ROM 03 IIGS) on your startup disk to install EGOed or any of the other system utilities on your GS+ Disk.

## Small Talk

Beginning with GS+ V2.N6, we began using GS-ShrinkIt to compress the *source code* on the GS+ Disk. To extract the

source code from their archives, you will need to use GS-ShrinkIt v1.0.4 or later. If you do not have GS-ShrinkIt, check with your local user group or give us a call here at *GS+* Magazine and we will help you locate a copy.

*GS-ShrinkIt* is not required to run any of the programs on the *GS+ Disk!* It is only required if you want to look at the source code that is used to create the programs!

#### What's On The Disk

There are 14 items in the root directory of this issue's disk. They are:

#### a.Read.Me

A lot can happen from the time we send this magazine to the printer and the time we get ready to mail them out. If anything does happen, we will put everything we can find out about it in this file. This is a plain text file.

#### CoolCursor

This folder contains the Cool Cursor

Control Panel and two other folders. The first folder, *Cursors* contains several sample cursors. The second folder, *Source* contains the source code to Cool Cursor. Cool Cursor must be installed on a startup disk with at least 60K free (19K is required for the Cool Cursor Control Panel and 41K is required for all of the cursors).

#### EGOed

This folder contains EGOed v1.4. EGOed is a New Desk Accessory text editor that allows you to read and print ASCII, AppleWorks (Classic and GS) and Teach files. This folder also contains complete user and technical documentation for EGOed v1.4 in the files *EGOed.Docs* and *EGOed.1.4.Tech*. The *EGOed.Docs* file is a plain ASCII text file while *EGOed.1.4.Tech* is a Teach file. EGOed must be installed on a startup disk with at least 46K free.

#### Feedback

This is the Feedback form for this issue. Fill it out, and send it to us to let us

know what you thought of this issue of *GS+* Magazine and what you want to see in future issues of *GS+* Magazine. This is a plain ASCII text file. (Note that we did not have room for a printed Feedback form in this issue of *GS+* Magazine. If you do not get the *GS+* Disk, but know someone that does, ask them to print you out a copy of this file so that you may fill it out and send it in.)

#### Glossary

This is a plain text file containing all of the terms defined in the past installments of our "Glossary" department.

#### Icons

This folder contains the icons discussed in this issue's "Icons" article. This folder also contains the file *ReplicatorIcons*. These icons are for the Replicator program and, when Replicator is installed on your boot disk in a folder called *Replicator*, allow you to open Replicator documents simply by double clicking on them.

(continued on next page...)

## DISKLESS?

If you did not receive the disk with this magazine and have decided you would like to have it, just send a check or money order for \$6.50 to:

**GS+ V3N3 Disk Offer**  
**c/o EGO Systems**  
**P.O. Box 15366**  
**Chattanooga, TN 37415-0366**

Or call us at 1-800-662-3634, Monday through Friday between 9 a.m. and 6 p.m. ET, to bill it to your MasterCard or VISA.

Tennessee residents add 7.25% sales tax.

Price includes \$1.50 for First-Class delivery to the U.S., air mail to Canada and Mexico, or surface mail to all other countries. Add an extra \$3.50 (\$10 total) for air mail to all other foreign countries.

### IMPORTANT!

**Use scissors or a knife to open disk bag!**  
**Do not attempt to pull bag away from magazine!**

### Installer

This is the Apple IIGS Installer. Run it to install the other programs on this issue's disk. For more information on using the Installer, check your IIGS owner's manual.

### OSLibrary

(If all you want to do is *run* the programs on the *GS+* Disk, forget that this folder even exists. You don't need it.) This folder contains the OSLibrary. This library is needed to recreate several of the programs on this *GS+* Disk. This folder also contains documentation for OSLibrary in the file *OSLibrary.Docs*.

### Problem.Form

This is the standard *GS+* problem report form. If you have a problem with one of our programs, please fill out this form and send it to us. This is a Teach file. You may use EGOed to view it.

### Replicator

This folder contains the Replicator

program. Replicator can be installed on any disk and in any folder (you can even run it from a backup copy of your *GS+* Disk if you wish), but we recommend that you install it on a startup disk with at least 52K free. This folder also contains the file *RepTech.Docs*. This is a Teach file containing technical information about Replicator. There is also a set of Replicator icons, which are described under "Icons" above.

### ResourceManager

This folder contains the Resource Manager demonstration program described in the "Working With The Toolbox" article. This program can be run directly from your backup copy of the *GS+* Disk. From the Finder, simply open the *ResourceManager* folder and then double-click on the *Resource* file. This folder also contains the ORCA/Pascal and APW REZ source code (*Resource.PAS* and *Resource.Rez*) required to recreate the *Resource* program.

### Scripts

This folder contains all of the scripts that are used by the Installer in order to automate the installation of the files from this *GS+* Disk.

### TechNotes

This folder contains the various Technical Notes that were mentioned in this issue.

### Writers.Guide

This is a Teach file that explains what you need to do in order to write reviews, articles, programs, etc. for *GS+* Magazine. You may use EGOed to view it.

### Please Remember...

The contents of the *GS+* Disk are *not* public domain or shareware! We depend on *your* honesty to stay in business. Please do not give away copies of the *GS+* Disk or any of the programs on it. If you do, we will not be able to stay in business. It really is that simple! *GS+*

## Icons

When this column started out, it was just an exhibition of Finder icons. All we could offer were a big "thank you" and your name in print. As you might expect, we were pretty desperate for icons! Ever since we made it a competition however, we've had a steady stream of icons flowing into our mailboxes. That's fine with me though, some of these icons are great!

For those of you just joining us, I'll explain how it works. Each issue, we take all of the icons that have been sent to us since last issue and pick a single icon or group of icons from all of the icons that are sent to us as the "best." We give the person that submitted the icon (or icons) either a *GS+* T-Shirt or an extra issue added to their subscription. We also pick a first and second runner-up . . . just in case the winner can't handle the touring schedule (or if those "art" photos they had taken a few years back show up in *A2-Central*).

All of the icon files described in this article are on your *GS+* Disk in the *Icons* folder. Most of these icons aren't intended to be used with any one particular program. So,

you will have to have an *icon editor* to look at them and modify them for your own use. Two of the more popular icon editors are *IconEd* by Paul Elseth, and *DlcEd* by Dave Lyons. Both of these are shareware programs that you can obtain from just about any online service, shareware clearing-house, or your local user group. If you can't find either of these icon editors, give me a call at (615) 843-3988 and I'll try to help you locate a copy.

### Second Runner-Up

Our second runner-up is Richard March of Chagrin Falls, Ohio. Richard sent us a generic 3.5-inch disk icon, a rather cool set of toilet icons (replacements for the empty and full trash can icons) and a couple of other icons for such programs as Copy II+, America Online, and Platinum Paint. It should be noted that with the exception of the disk and trash can icons, all of these icons are for *folders* and not the applications themselves.

### First Runner-Up

Our first runner-up is an old friend of the "Icons" column: Karl Bunker of

By Steven W. Disbrow

Brookline, Massachusetts. Karl's icons include one for America Online, Audio Zap, Talk Is Cheap, BeagleWrite and an icon for Antetris. The Antetris icon is especially interesting because of the small block of text that Karl included at the bottom right corner of the icon. Karl says this was accomplished by using *DlcEd*, *PlatinumPaint*, and the *Instant Icon NDA*.

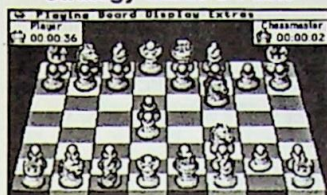
### And Our Winner Is . . .

Ricci Dias of Elk Grove, California sent in a set of 5 really great icons. Two of the icons are for the *Accolade* game "Jack Nicklaus Golf." Another icon, "GrandPrix" is for any racing games you might have. All of these are good, but the last two, for the games *HoverBlade* and *Xenocide*, are the ones that won this issue's prize for Ricci. Thanks for the great icons Ricci! Your *GS+* T-Shirt is on its way!

That's all for this time. Remember that we want to see icons for *HyperCard IIGS* and *HyperStudio* as well as the *Finder*! So get busy and send them in (and don't forget to tell us your t-shirt size)! *GS+*

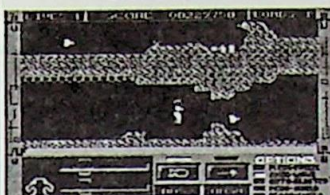
# Exclusive Source for the Best IIGS Programs

## Strategy Game 3-Pack



**Strategy 3-Pack:** Get 3 great programs for the price of just 1. **Shanghai** by Activision allows you to play Mah Jongg. **Chessmaster 2100** by Software Toolworks is the premier chess program for the Apple IIGS. **Blackjack Academy** by MicroIllusions will teach you the strategy behind this card game. To get all 3, Order product number BR51 for only \$46.

## Xenocide™



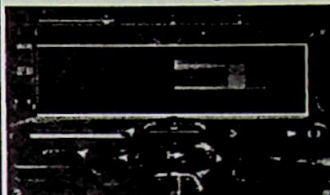
**Xenocide™:** An alien race has taken over a research outpost on a moon. Your job is to travel across the moon's surface in your hovercraft, then go into the underground caverns and locate five explosive devices. Next get to the Bio-lab and place the bombs in the nuclear reactors to destroy the moon and the aliens. Order product number MR50 for only \$23.

## Task Force™



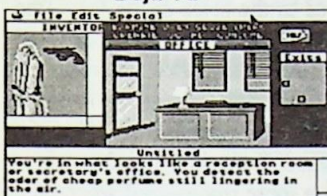
**Task Force™:** Your mission is to clean up the streets in L.A., Chicago, Washington, San Francisco and New York. Starting with a pistol you end up with flame throwers, missile launchers, grenades—all the latest stuff. The graphic detail and fluid animation is amazing. The hottest action ever for the IIGS. Simultaneous 2-player mode. Order product number DW56 for only \$25.

## Tunnels of Armageddon™



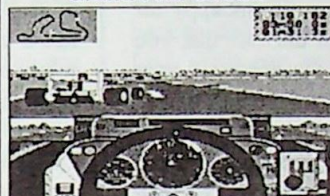
**Tunnels of Armageddon™:** An arcade game by California Dreams that will leave you dizzy. Feel the G-Forces as you navigate through the tunnels. Use your blaster to clear out whatever gets in your way. Lavish detail. Great action. Unbelievable feeling of warp speed motion. A+Incider gave it a 9 out of 10 rating! Order product number CD53 for only \$20.

## Deja Vu™



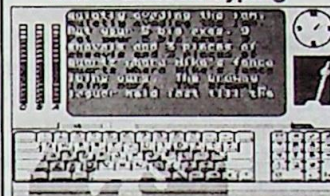
**Deja Vu—A Nightmare Comes True™:** A graphic adventure in which everything seems vaguely familiar, yet you can remember nothing. There's only one person who can control the outcome of this mystery. Only you can clear yourself of the murder charges. A great program for all the Mickey Spillane fans! Order product number MP54 for only \$15.

## Grand Prix Circuit™



**Grand Prix Circuit™:** Experience the power of Formula One racing. You're behind the wheel to sense the acceleration and precise handling. Race on the worldwide circuit and win the grand championship. You can reach speeds of over 200 m.p.h. on the straight aways but be sure to slow down for the curves. Order product number FL62 for only \$24.

## Mavis Beacon Typing™



**Mavis Beacon Teaches Typing™:** Lessons are constructed from an enormous database. Features constantly updated information and never the same lesson twice. Focus on word/letter combinations and watch your improvement show on the performance charts. Includes a typing game to give you a break in the action. Order product number SF53 for only \$20.

## Dragon Wars™



**Dragon Wars™:** The designers of Bard's Tale, Wasteland and Battle Chess have pooled their talents to create the ultimate role-playing fantasy. Sailing across uncharted seas, you and your party are in search of a legendary paradise called Dilmun. But instead you've been imprisoned and magic is your only salvation. Product number IF57 is only \$30.

## Great Western Shootout™



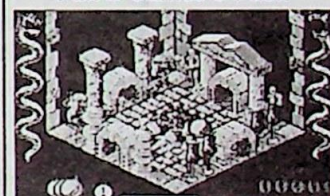
**Great Western Shootout™:** You're in for some of the shootiest, bangiest, root'n'ootiest arcade action ever. Shoot the bad guys as they pop up behind the stagecoach, on top of the saloon or in the windows. Watch where you plant those bullets so you don't hit any innocent town folk. Order product number DW53 for \$15.

## Neuromancer™



**Neuromancer™:** With your futuristic portable computer "deck" you descend into a dimension created through your brain called cyberspace. Based on the novel "Neuromancer" by William Gibson, this role-playing adventure will keep you busy for hours. A soundtrack by DEVO will keep you entertained. Product number IP58 is only \$15.

## Fun & Games 3-Pack



**Fun & Games 3-Pack:** **Airball** by Michtron is a blast. You need to maneuver a balloon through a maze of spikes and other sharp objects. **GBA Basketball** by Activision lets you take the court in two-on-two action. **Fire Power** by MicroIllusions is a tank battle game in which the object is to capture the other player's flag. To get all 3, Order product number BR52 for only \$44.

## Block Out™



**Block Out™:** It's like Tetris™ but it's 3-dimensional. Your job is to rotate and maneuver various 3-D blocks as they fall into a pit. The idea is to make the blocks fall into the proper position to form complete layers. As each layer is completed, it vanishes, giving you more room to work with. This game is definitely addicting and it gets our top rating! CD54 is only \$20.

Free Shipping to U.S. and Canada  
Fast Service. Order by Fax (402) 379-3361  
MasterCard or Visa Accepted

Prices quoted in this ad are for non-members of the Big Red Computer Club. Member prices are even cheaper! Member prices are from \$2 to \$10 less per title. You can become a member for only \$19.95 and save Big Bucks. Plus you'll receive twelve issues of our great newsletter called Scarlett. School purchase orders accepted.

# Big Red

COMPUTER CLUB

423 Norfolk Avenue, Norfolk, NE 68701

## Music Studio™ 3-Pack



**Music Studio™ 3-Pack:** The premier music composition program, **Music Studio 2.0**, allows the user to compose, arrange and play their favorite music. Real time MIDI input. Design your own instruments! Also included in the pack are additional Instrument and Song Disks for Music Studio. Order product number BR54 for only \$39.

## Other Great Apple IIGS Programs

|                                     |      |                              |      |
|-------------------------------------|------|------------------------------|------|
| Balance of Power 1990 .....         | \$20 | Instant Synthesizer .....    | \$20 |
| Bard's Tale I .....                 | \$20 | Jigsaw! .....                | \$15 |
| Bard's Tale II .....                | \$20 | Keef the Thief .....         | \$20 |
| Bubble Ghost .....                  | \$15 | Laser Force .....            | \$15 |
| Captain Blood .....                 | \$20 | The Last Ninja .....         | \$20 |
| Cartooners .....                    | \$15 | Life & Death .....           | \$20 |
| Clip Art 3-Pack .....               | \$30 | Mean 18 Golf .....           | \$30 |
| Club Backgammon .....               | \$10 | Music Construction Set ..... | \$10 |
| Deja Vu II: Lost in Las Vegas ..... | \$15 | PaintWorks Gold 3-Pack ..... | \$39 |
| Deluxe Paint II .....               | \$15 | Serve and Volley .....       | \$20 |
| Gin King/Cribbage King .....        | \$20 | Shadowgate .....             | \$15 |
| Gnarly Golf .....                   | \$9  | Triango .....                | \$10 |
| Hacker II .....                     | \$20 | Vegas Craps .....            | \$15 |
| The Immortal .....                  | \$30 | Vegas Gambler .....          | \$15 |
| Instant Music .....                 | \$15 | Zany Golf .....              | \$25 |

For Free Catalog and To Order - Call Now! - (402) 379-4680

## MacLand 105MB Hard Drive

Available only from manufacturer for \$389 plus shipping. This price does not include a SCSI controller card.

MacLand, Inc.  
4685 S. Ash Ave.  
Tempe, AZ 85282  
(800) 888-8779

Reviewed by Greg Zimmerman

### Introduction

The MacLand 105MB Hard Drive is typical of the drives sold by dozens of third party hard drive retailers. MacLand combines the hard drive from the manufacturer (in this instance, Quantum) with a standard and readily available external case. They then market the package through extensive advertising in industry publications, and as you might guess from their name, this doesn't include IIGS publications.

However most "Mac drives" will work just fine on a IIGS (see "Buying & Using Mac Hard Disks" in this issue), and the MacLand 105MB Quantum External (the "MacLand") is no exception.

### What You Get

When you buy the MacLand you get the same external case that is used by dozens of industry resellers, including TMS Peripherals and Frog Systems (see comparative review in *GS+ V3.N1*). This case features a 40-watt power supply and fan, external push-button selectable SCSI ID, two power outlets, two 50-pin SCSI connections (so you can daisy-chain devices), and it also comes with power-cord and SCSI cable. Termination can be removed (or put back) through a removable window on the bottom of the drive case. The case is the "zero footprint" size (i.e. it will fit right under a Mac Classic), and matches the IIGS color almost exactly.

Inside, the MacLand is the Quantum 105MB LPS mechanism, the same drive mechanism that is also used by dozens of industry drive retailers. Many marketers catering to both Mac and IIGS owners use this mechanism.

### The Details

For starters, the drive formatted out to only 102.7MB on the IIGS. This is only a couple of megabytes less than the advertised size and in my experience this isn't bad at all. Some drives format out to much more than advertised, but others can format out to much less. For example, the TMS Peripherals drive formatted out to *exactly* the same size as the MacLand, while the drive from Frog Systems that I reviewed went to slightly over 103MB.

The drive is accompanied by terms that are becoming more and more standard throughout the industry. The MacLand carries a 30-day "no questions asked" return policy, so if you are unhappy for any reason (other than the fact that you accidentally knocked the drive off your desk while it was running, and watched in horror as it fell on the dog, who in a fit of instant rage, grabbed it between his teeth, reared his head to one side, and flung it across your room, ripping out the SCSI and power connections in the process and causing the drive to land in your new saltwater fish tank), you can get a refund of the entire purchase price, less shipping costs. The MacLand also comes with a two-year warranty, and there is a toll-free tech support number to call (of course this will be of use to Mac owners only—when I spoke to them and mentioned "IIGS" they had no idea what I was talking about). You can even get the MacLand credit card ("most applications are approved the same day") if your eyes are bigger than your wallet. My granddaddy used to say that if you wanted to see 90 days go by real fast, just sign a note!

One small caveat on the terms enumerated above. The ad in *MacWorld* doesn't say anything about 30-day return privilege and two-year warranty (though the manual does give the warranty info), so this is mostly from the person on the phone that answered my questions and took my order.

### But, How Fast Is It?

O.K., I'm glad you asked for the real scoop. Simply put, the MacLand performs almost identically to the TMS and Frog drives which I previously reviewed (see Figure 1 for a comparison). Here are some speed figures for the drive

when attached to the Apple II High-Speed SCSI card in a ROM 01 IIGS equipped with a 7MHz TransWarp GS.

1. Duplicate a 740K folder: 35 seconds.
2. Verify a 26.5MB partition: 45 seconds (that's just over half a MB per second).
3. Reboot from the black "O.K. to shut down your IIGS" screen loading a bare System Folder: 20 seconds.

### Would You Buy This Drive?

The MacLand appears to be a sound drive, and an excellent value based on the sales price. At only \$389 plus shipping, the drive is close to the price of the Frog (the last I checked they were at \$359) and substantially below the price advertised by TMS in the February issue of *A+/inCider* magazine for a Quantum 105 LPS drive in the same case. Keep in mind that prices do change on these things (and when they do they usually go down), and that the prices used in this review were in effect in mid-January 1992.

Does the MacLand come formatted for the IIGS? *No*.

Does the MacLand have tons of IIGS public domain software? *No*.

Does the MacLand come with a great Apple IIGS specific manual to get instruction from? *No*.

Will the toll-free technical support be of any use to a IIGS owner? *No*.

But if you want a Quantum-based external hard drive, this one offers excellent value. Partitioning/formatting takes up only 10 or 20 minutes of your time. I end up trashing most of the public domain stuff that some sellers include on drives because it's taking up disk space that I paid for! Why did I pay for it? Because I need the space for *my* stuff, not somebody else's. Instructions on what to do? Well, you can read your SCSI card manual (the Apple II High-Speed SCSI card manual tells you almost step by step what to do with a new drive to format and partition it), or you can refer to this issue's "Buying & Using Mac Hard Disks" article. As for the

technical support issue, if you can't get it to work within the first 30 days, you can send it back and order another drive from a IIGS drive vendor.

The MacLand is offered at almost \$100 less than the Quantum based drives sold by the lowest priced retailers catering to the IIGS market, and compared to most sellers, the savings are much greater! For near \$100, I can do a little reading (learning a few things along the way), and I certainly can do a little partitioning and formatting.

Should I feel bad taking my dollars and spending them with someone that is not supporting the IIGS market, but who offers the same product for a much better price with a "Mac" label? Well, from my perspective, that depends on who's kids I want to help put through college, and who's kids should get the benefit from that extra \$90 or so.

I recommend the MacLand drive. GS+

### Tulin Half Shell 120 Hard Drive

Price w/Apple II High-Speed SCSI: \$589  
Price w/RamFAST SCSI: \$668

Tulin Corporation  
2156H O'Toole Avenue  
San Jose, CA 95131  
(408) 432-9025

Reviewed by Brian M. Winn

In the long history of the Apple II computer, many great storage devices have come to be. The hard drive first came into our life in the form of the 5MB ProFile hard drive housed in a large rusty-colored box. This drive was created by Apple and sold for over a thousand dollars (if I recall correctly). Since then, hard drives have come a long way. The drive capacities have grown enormously, the physical sizes have decreased, and the prices have dropped substantially. In GS+ V3.N1 you read a comparison between two 100MB hard drives from TMS and Frog Systems, in this issue, I'll review yet another great high-capacity hard disk: the Tulin Half Shell 120.

Figure 1 - DiskTimer GS v2.0 Results

|                  | Frog* | MacLand | TMS*    | Tulin°  |
|------------------|-------|---------|---------|---------|
| Read             | 35    | 31      | 29 (33) | 24 (36) |
| Multi-Block Read | 21    | 20      | 21 (24) | 21 (24) |
| Seek             | 47    | 18      | 17 (21) | 64 (68) |
| Adapt            | 26    | 19      | 17 (20) | 14 (22) |

All readings were taken with hard disks attached to the Apple II High-Speed SCSI card.

\*See comparative review in GS+ V3.N1.

°The Tulin drive was tested on a system with an 8MHz Zip GS. The other drives were tested on systems with a 7MHz TransWarp GS. The times shown in parenthesis were taken at the IIGS normal speed of 2.6MHz.

### Growing Up Too Fast

You know you are growing up in the computer world when a 40MB hard drive just won't hack it anymore. You must continually copy items off the hard drive back to disk to make room for your new files. This past year I was encountering this problem all too often. Therefore, I recently sold my old faithful Vulcan 40MB internal and purchased the Half Shell 120 from Tulin Corp. Yes, that "120" stands for a whopping 120MB of storage. Actually the drive formats to approximately 119MB under GS/OS. With the ProDOS FST you must divide the drive into four partitions (:TULIN1 to :TULIN4). This is because ProDOS can only handle volumes up to 32MB in size. This is expected to change with the advent of System 6, in which you can use the HFS FST to achieve unlimited volume sizes.

### Drive Specs

The drive comes bundled with an Apple II High-Speed SCSI card (you can substitute a RAMFast SCSI card for an extra charge), the drive itself, and accompanying manuals and disks. The drive was preformatted for ProDOS and had all appropriate System Software installed. The manual was sufficient in instructing the installation of the SCSI card and hard drive. It also detailed physical characteristics about the CP30100 1:1 interleave drive mechanism. I, however, performed my own speed tests with Joe Jaworski's DiskTimer GS v2.0 program (see Figure 1 for comparisons).

The 2.5" Half Shell stands not quite as high as an 3.5-inch drive, but is a little over an inch wider. The color scheme matches that of the platinum IIGS. This

drive would be an excellent choice for those with little or no desk space. The drive has a SCSI connection port on the back, but it does not have a daisy-chain port for the addition of other devices after the hard drive in your SCSI chain. This means that the drive must be the last device in your SCSI chain. This can cause real problems if you have several devices or if you have another device with only one SCSI port.

The drive was relatively quick compared to the Vulcan 40MB drive. The computer launched from system beep to Finder (with several fonts, Desk Accessories, and Inits) in a little over 30 seconds. This time was taken from a warm boot, meaning that the drive was already up and running. You must turn the drive on and wait about 10 seconds before you turn on the computer in order to allow the drive to unpark its read-write heads and spin up the disk platters. This is a minor pain if you are accustomed to just turning on your computer and going, although, most other external hard drives have this same problem. Launch time from the Finder to AppleWorks GS was under 10 seconds. I obtained these features on a ROM 01 IIGS with an 8MHz Zip GS. They would be a bit slower on a IIGS running at 2.6MHz.

### Conclusion

I have used the drive in my system for five months now and everything still works great. This drive runs smoothly and is fairly quiet with its own internal fan. You can't find a better price on a hard drive/SCSI card package than the one which Tulin Corp. is currently offering. I strongly recommend the Tulin Half Shell to anyone needing a high-capacity SCSI drive for their growing system. GS+

## SuperConvert

By Jason Harper

Retail price: \$39.95

Typical mail-order price: \$29.00

Not copy protected

Requires 3.5-inch disk drive, 1MB RAM

Seven Hills Software

2310 Oxford Road

Tallahassee, FL 32304-3930

(904) 575-2015

Reviewed by Big Dave Adams

### Hey, This Looks Familiar...

If you have a IIGS and a modem, or have access to any good public domain/shareware library, the chances are pretty good that you have come across a shareware program known as SHR Convert. This program lets you load graphics in a variety of formats and convert and save them as IIGS-specific graphics. It is generally found in any modem addict/software junkie's library. SuperConvert is the latest evolution of that program. Please note that SuperConvert is a *commercial* program and not shareware like its predecessor SHR Convert. But enough of the History lesson, we're here to talk software. SuperConvert is a graphics utility that allows you to access many types of computer graphics from many types of systems. Ever see a good looking graphic on another type of computer? Well, now you can take that graphic and add it to your collection or hypermedia stack with a minimum of fuss and effort.

### Variety Is The Spice Of Life...

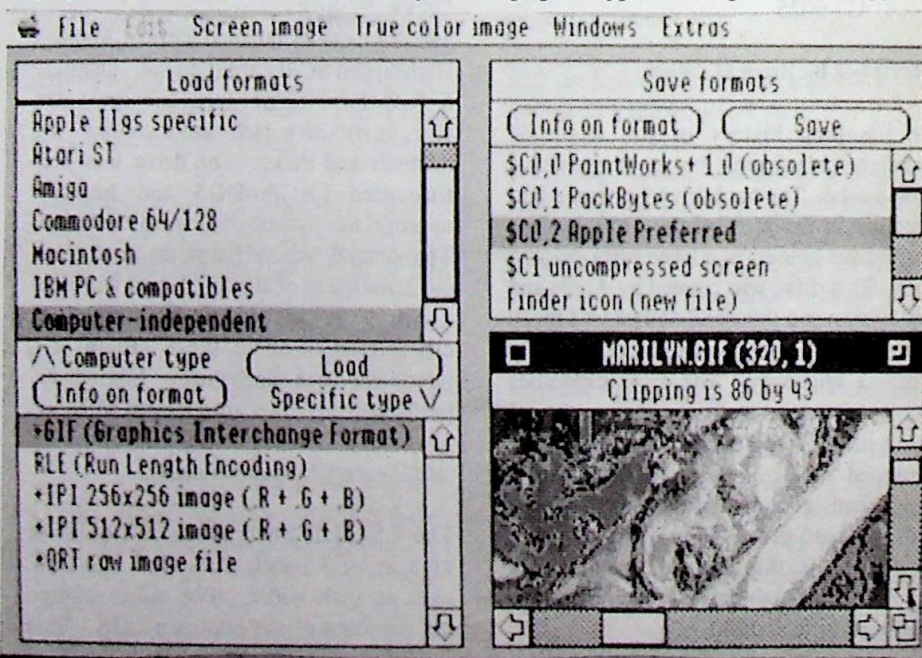
OK, what types of graphics does SuperConvert support? Well, for starters those good old IIC/c/+ graphics (Hi-Res and Double Hi-Res) are still available. The IIGS has every type of graphic represented (Super Hi-Res a.k.a. SHR, Print Shop graphics, Finder Icons, 320 and 640 modes, and even 3200-color pics). You can load in graphics formatted for Atari STs, Amigas, C64 and C128s, Macs, IBM PCs and compatibles, and the ever present Graphic Interchange Format (GIF) intercomputer system standard that is so popular on CompuServe. Each

platform has several different types of graphics types available and SuperConvert can handle the most popular types. Simply put, SuperConvert allows you to access almost any popular type of graphic and convert it to a type that your IIGS can use. Please note that you will have to get the graphics transferred onto a GS/OS (ProDOS or, when System 6 is out, HFS) disk. The easiest way is simply downloading the graphics with a modem. Apple File Exchange (for Mac owners) and a few public domain/shareware programs also allow a IIGS to recognize a Mac disk without having to wait for System 6.

One of the major strengths of SuperConvert is its ease of use. You simply click on the type of image you wish to load and click on the type that you wish to save it as. In its simplest mode, anyone can convert graphics. However, there is a lot of muscle in this program that can satisfy even the most greedy of graphic mongers. SuperConvert possesses a whole slew of tools one can use to enhance and control the conversion process. As a matter of fact, this program will handle just about any IIGS user's knowledge base. It provides ease of use for novices and power for experts. Even if you think a remap is the process of folding the map back into its original shape, you can use this program. For those who are more familiar with graphics, you will appreciate the ability to

quickly remap images, switch palettes and graphic modes, use quick previews or more detailed rendering algorithms, and alter the vertical and horizontal scaling. You can view the data fork of a file as hex or ASCII, view the histogram (a spectrum analysis) of a file's data or resource fork. Screens can be viewed at half, full or 4x magnification. Some of the nifty parts of SuperConvert are found under the Extras Menu. SuperConvert can make a graphic image of all of the available fonts in your \*:System:Fonts folder. You can then print this out for quick and easy reference. A Font Key Chart lets you examine all of the available characters for a font, size, and style at once. Hex values and keystroke equivalents are also provided. SuperConvert also lets you print a two-line banner—although Print Shop would probably be a better choice for a large banner project. Another neat feature allows you to see exactly how the memory in your computer is being used. You can even print out the information. SuperConvert also comes with a New Desk Accessory that initializes disks—just in case you run out of room on your current graphics disk.

As is typical of Seven Hills Software products, the manual is far superior to most other software manuals. In addition to telling you how to use the program, it contains a wealth of information on the graphics types that SuperConvert supports





and the conversion methods that it uses. It is extremely well written and very easy to understand. SuperConvert also has an extensive online help system that complements the manual quite nicely.

### What? No Problems?

The only bad thing about the program is the speed (or lack thereof) with which it processes GIF files—it is a bit slow for

my tastes when processing GIFs. It would be nice to see this speeded up in the future. It would also be nice if SuperConvert could automatically strip those blasted headers that are usually attached to GIFs created on the Mac.

### The Bottom Line . . .

This is a very sharp utility if you have a need or passion to convert graphics.

Whether you are just tinkering or overhauling a picture, SuperConvert can fulfill your needs. Although SuperConvert cannot convert every type of computer graphic and is limited in what it can display by the video hardware of the IIGS, its strengths more than outweigh its few weaknesses. All in all, it is one fine program. **GS+**

### Signature GS

Programmed by D. Proni

Retail price: \$29.95

Not copy protected

Hard drive and 2MB RAM recommended

Q Labs

20200 East Mile Road

St. Clair Shores, MI 48080

Orders: (800) 443-6697

Technical Support: (313) 774-7740

Reviewed by Mark Ranes

### "Plain Vanilla" IIGS's?

Let's face it. Computer users like to dress up their machines. All one has to do is look at the utility libraries of any of the online services to find a multitude of utilities that change the general appearance or functionality of the standard user interface. The folks at Q Labs decided to take advantage of the fact that we don't like "plain vanilla" Apple IIGS computers and published a set of four Control Panel Devices. Three of the utilities (Phantasm, Graffiti, and Sonics), do nothing more than customize your Apple IIGS desktop. The fourth, Boot Master, allows you to change the configuration of your system files.

### Installation

Signature GS comes on a single 3.5-inch disk with a well-written nine-page manual. I like to take a new product and see how far I can get without opening the manual. I booted my system and looked for a standard Apple Installer program on the Signature GS disk. None was to be found, but I did notice an executable file called **Signature** and, being a brave soul, fired it up. It was the Signature custom installer. A nice touch. Had I dug into

the manual first, I would have found a nice description of how to use the installer. The installer program was straightforward. There are four check boxes to select which modules to install. After selecting the appropriate drive to install the Control Panels on, all one has to do is press the return key. The Signature installer works quickly and well. The installer forces a reboot on shut down because of changes to the system files and also to allow loading of the Control Panels.

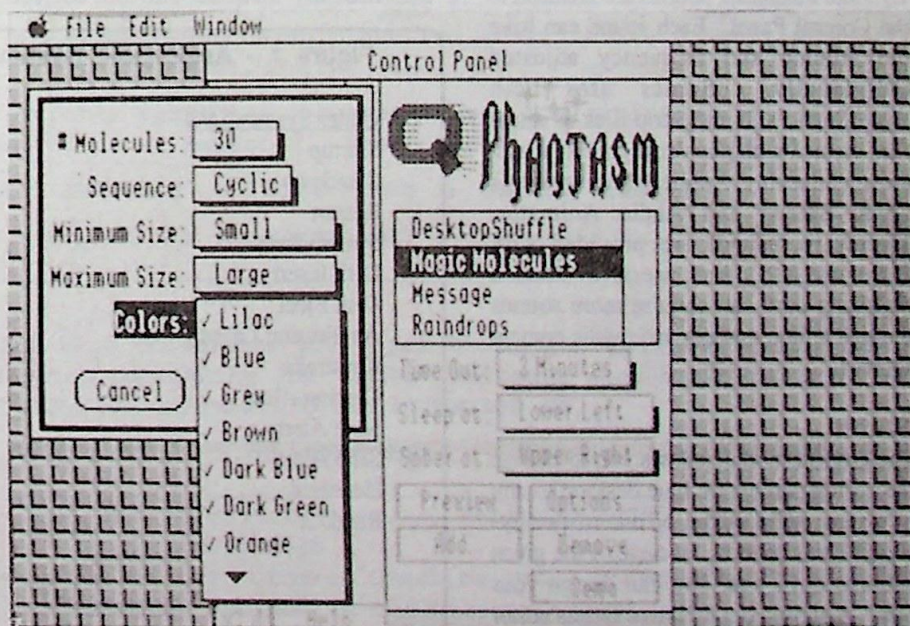
### Configuring . . .

My next twenty minutes with the Signature GS package proved frustrating. The new Control Panels did not show up in the Control Panel NDA. Having had similar experiences in the past, I deleted the file called **CDEV.DATA** in the **CDevs** folder and rebooted. I instantly knew this had corrected the problem as four new icons appeared in the lower left hand corner during system startup. I opened the Control Panel and went

straight to Phantasm. Unfortunately, the installer program only installs the neatest of the screen blankers, Magic Molecules. There is an "Add..." button that allows the user to add other blanking effects, so I attempted to add another blanker. This is where I ran into trouble. Every time it tried to add a blanker, my computer locked up and I got the message "Can't load icon resources - Error is \$1E06." After many attempts, I wondered if the problem had anything to do with using Salvation: Wings as my launching program. I kicked into the Finder and at this point the "Add..." process worked flawlessly. Adding sounds for the Sonics module also had to be done from the Finder or some other GS/OS-based application.

### Phantasm

The Phantasm module currently allows the choice of seven different blanking effects ranging from beautiful three-dimensional bubbles to slimy little slugs that eat up the screen image. Phantasm attaches



blanking effects to the Control Panel rather than storing the effects in a folder, like previous screen blanking utilities. Attaching the blanking effects to the Control Panel saves space on the boot disk, a definite need for those using Phantasm on a 3.5-inch disk. You can choose to blank the screen in as little as one minute or as long as one hour. Phantasm also allows you to choose corners of the screen to blank the image immediately or keep the screen from blanking. Two more buttons allow you to preview the selected blanking effect or demo all of the installed effects.

Unlike previous screen blanking utilities for the IIGS, each Phantasm blanking effect has several options. They allow you to select the number of images dancing around your screen and the colors they will be displayed in. Two more buttons allow you to remove blanking effects and, as the manual states, an add button that "adds a new effect from future Signature effects disks." I'm already looking forward to the release of further Phantasm blanking effects.

### Sonics

The Sonics module allows you to assign specific sounds to many of the Apple IIGS system events, from error beeps to disk ejects. When System Software v6.0 is released, even more events will be available to assign sounds to. (See Figure 1.) Like Phantasm, sounds are attached to the Control Panel. Each sound can have the volume and frequency adjusted individually. Sonics uses both HyperStudio's Sound Shop files or sound files created with popular digitizing cards, most noticeably Applied Engineering's Sonic Blaster and Audio Animator. Twenty-six sounds are provided with Signature GS, and users without a digitizing card can acquire more sounds through online services and public domain sources.

### Graffiti

The Graffiti module allows you to change the boring periwinkle blue desktop to any of sixteen solid colors or one of twenty-six different patterns. If none of the given patterns thrill you, you can design your own. A simple but effective fatbits editor

allows you to select up to sixteen different colors and instantly see the results in a preview window. Graffiti does allow both 320 and 640 mode preview, although color shifting may occur in 320 mode. The manual states that Graffiti may have trouble with certain programs, particularly paint programs that use their own color palette instead of the IIGS's built-in palette. When you are satisfied with your creation, a click in the preview window makes it the active desktop pattern. If you are a particularly creative soul, Graffiti allows you to save an unlimited number of user created patterns.

Like previous desktop editors, Graffiti causes Finder icons to disappear when a new desktop pattern is invoked. The manual documents this problem well and tells the user to click on the place where the icons used to be to reveal them again.

### Boot Master

The Boot Master module allows you to activate and deactivate Classic Desk Accessories, New Desk Accessories, permanent and temporary Initialization files, drivers, File System Translators, and Control Panel Devices. A button allows you to get information on any type of system file, including creation and modification dates as well as size in memory and on disk. Buttons are provided for installation and removal of new system files. The new system files are automatically installed into the correct

folders. A unique feature of Boot Master is the ability to save a "snapshot" of a specific system configuration and save it to disk. Should you discover that some program is incompatible with a certain NDA or Initialization file, simply load the system "snapshot" that corrects the problem and Boot Master will set the correct system configuration. Of course a reboot is necessary, but this would still be faster than manually activating system files from the Finder.

### Bringing It All Together...

Overall, Signature GS is a quality package. Q Labs must have looked at the available shareware Control Panels and spent time thinking about how to improve on what is already available.

I bought Signature GS specifically for Phantasm. Its modules will remind users of the capabilities of the After Dark screen savers for the Macintosh. It is nice to be able to tailor each blanker and further customize your desktop. Sonics and Graffiti will add fun to the daily operation of your IIGS. Wait until you hear your IIGS belch when you eject a disk!

Q Labs states that Signature GS will be compatible with System Software v6.0 and more features will be available in Sonics. Currently, those features are dimmed while running under System Software v5.0.4. Q Labs has planned for the future with forward compatibility.

Figure 1 - Assignable System Events For Use With Sonics

#### Under System 5.0.4

Startup  
Shutdown  
Restart  
System Beep  
Disk Insert  
Disk Eject  
Application Launch  
Keystroke  
Caution Alert  
Note Alert  
Stop Alert  
Heartbeat  
Random

#### Additional Events Under System 6

Operation Complete  
Operation Impossible  
Operation Failed  
Bad Keypress  
Bad Input Value  
Input Field Full  
Disk-Swap Request  
Bad Disk  
Fill Trash  
Empty Trash  
Woosh Open  
Woosh Closed  
Attention  
You Have Mail  
GS/OS Error  
System Error

Users with low memory and no hard drive will find using Signature GS difficult. The Control Panel Devices (and Init files for Phantasm and Sonics) themselves require 203K of disk space. Of course, not all of the modules need to be installed, but that defeats much of the fun that can be had using Signature GS. A manual addendum is enclosed in the package to help users without a hard drive deal with these limitations.

### Concerns

My main complaint with Signature GS is that installation of visual and sound effects cannot take place within my launching program, Wings. There was no mention of this within the manual. With the prevalence of hard drives today, more and more people are using different program launchers. Signature GS should be compatible with those interfaces. I also experienced double system beeps during certain system functions using the Sonics module. The "Save before closing?" question in AppleWorks GS brought forth

first the standard system beep followed by my selected sound file. Both of the previous problems can probably be traced back to the applications in question, but prospective buyers should be aware of these incompatibility problems.

Also of concern is that information is not included in the Signature GS package to allow the user to write Phantasm blanking effects. With only seven blanking effects included in the Signature GS package, users will need to rely on Q Labs to supply future blankers.

### Is Signature GS Worth \$30?

There are freeware and shareware utilities available that do most of the things that the Signature GS Control Panel Devices do. DeskColor (Freeware), a Control Panel by Dave Leffler, is a desktop editor. AlertSound (Shareware, \$8.00), a Control Panel by Joshua M. Thompson, allows the user to change the standard system beep sound, but does not allow for the assigning of particular sounds for specific

system events. Twilight (Shareware, \$10.00) a Control Panel by Jonah Stich and Jim Maricondo, is a GS/OS based screen blanking utility that also allows simple blanking of ProDOS 8 applications (unlike Phantasm). Twilight's strength lies in the users ability to create new blanking effects. Even non-programmers can create simple animated blanking effects. Finally, Init Master (Shareware, \$10.00) is a temporary Initialization file that allows the user to select which desk accessories and Init files are active on startup.

Shareware fees for items comparable to the Signature GS package total \$28. My recommendation is to buy Signature GS. Each of the four Control Panels in the Signature GS package are more polished and offer more features than their shareware and freeware counterparts. Hopefully, the higher quality of these utilities will further motivate other programmers to write even better Control Panels! **GS+**

---

## ENHANCE YOUR IMAGE

### Image Enhancement Comes To The Apple IIGS

Image enhancement processes have been proven through years of use on other computers. **NOW**, they are available to improve your Apple IIGS SHR graphics with **SECOND CHANCE V2.0**.

Smooth. Edge enhance. Change contrast. Add or subtract. Line & point detection. PLUS "the best" 320 to 640 gray scale conversion available. Also includes 320 color to 320 gray scale & 640 to 320.

Most of the processes are under user control so you get just the amount of enhancement your graphic needs. You can watch as the enhancement takes place and abort it if it isn't what you want.

Very often, graphics imported from other computers, or even those we digitize ourselves, just don't turn out as well as we expected. When that happens . . .

**DON'T DELETE THOSE GRAPHICS -- GIVE THEM A SECOND CHANCE!**

Only **49.95** (no shipping)

---

### X2

**X2** contains only the **SECOND CHANCE V2.0** conversion processes including "the best" 320 to 640 conversion for use in 640 mode desktop publishing and "hyper" software such as **APPLEWORKS GS**, **GRAPHIC WRITER III**, **HYPERSTUDIO** and **HYPERCARD GS**.

Only **9.95 + 1.50 shipping**

---

**RAPTOR, INC.** - P.O. Box 20756 - Louisville, Kentucky 40250

(502) 491-6828

(Sorry. We can not accept credit card orders. Check or money order only.)

Online support through **AMERICA ONLINE** in the Direct Connect area.

## Learn To Program In C

By Mike Westerfield

### Learn to Program in C bundle

(Includes ORCA/C)

Retail price: \$200.00

Typical mail order price: \$120.00

### Learn to Program in C

Retail price: \$50.00

Not copy-protected

Requires 1.25MB RAM

The Byte Works, Inc.

4700 Irving Blvd. NW, Suite 207

Albuquerque, NM 87114

(505) 898-8183

Reviewed by David Farber

If you weren't a programmer, but wanted to be, wouldn't you like it if someone taught you how to program? Well, you're in luck because someone has volunteered to sit down and teach you C or Pascal! Learn to Program in C and Learn to Program in Pascal, both from the Byte Works, are your ticket into the fabulous world of computer programming. We're going to review both of these packages, the Learn to Program in C tutorial in this issue, and the Pascal tutorial in the next issue, so that all you wanna-be programmers can fulfill your dreams of fame and fortune!

There are two things I would look for in a good language tutorial. First, how easy is it for beginners to understand the tutorial, and hence the language? In other words, does the tutorial decrease the learning curve, or increase it? Secondly, just how much of the language does the tutorial teach you, and how well does it present the more intricate subtleties of the language, i.e. will you be writing simple do-while loops, or real programs when you've gone through the tutorial. It is kind of hard for one person to pass both judgements on any tutorial. A beginner would be in a position to judge its ease of use, etc, but would not be in a position to whether or not the tutorial covered all the bases. (A beginning C programmer might take a particular programming course and think it very informative, but if C's data-structuring abilities were left out of the

course, he would have no way of knowing that he missed out on one of C's most powerful, and useful, features.) On the other hand, someone who is experienced in the language would be at a slight disadvantage when trying to judge a course's approach to beginners.

So here is what we're going to do. Since both tutorials were written by the same person, and are so alike that they even use many of the same example programs, we're going to pretend that they are, for all intents and purposes, the same tutorial. Now, I've had quite a lot of experience with the C language, however, I've never typed even a single character of Pascal code. So I'm going to go through Learn to Program in C with a fine toothed comb to see just how well the course presents the language. In the next issue of *GS+*, I'm going to tell you how Learn to Program in Pascal looks from the beginner's point of view. We'll apply the conclusions we draw about one course to the other. If Learn to Program in Pascal is a little rough on the beginner, then I think we'd be safe in saying that you could expect the same from Learn to Program in C. Likewise, if Learn to Program in C does a solid job of presenting the C language, we can assume that Learn to Program in Pascal does the same. With that said, let's get to programming!

Learn to Program in C is a seventeen lesson C language tutorial. The lessons occupy a large 1-inch binder and the course comes with a disk containing the source to all the examples in the lessons. I really like the fact that you automatically get the source code disk with the tutorial. Every other computer language tutorial I've ever bought made you buy the source code disk separately; needless to say, I never did get around to buying the disks. The course bills itself as an introduction to programming, *not* an introduction to Apple IIGS desktop programming. Consequently, the course assumes that you have ORCA/C and are using the PRISM desktop shell.

I learned C by taking an "Algorithms in C" class. The purpose of the class was to study fundamental computer algorithms, but we were taught C along the way so we

could implement the algorithms. I couldn't have taken a better class to learn C in! When the 10-week quarter was up, we had covered the entire C language except for the use of semaphores. (Semaphores are special variables that deal with forked processes—not something you have to worry about on the IIGS.) Between the three major programming projects and the weekly labs, we wrote code utilizing almost every aspect of C—whether we needed it for our algorithms or not! I am pleased to say that Learn to Program in C is no disappointment when it comes to content. Books (and binders) don't give you quite the attention that a prof or a lab teaching assistant does, (a book can't look at your code and give you hints as to where you are going wrong) if something goes wrong, you have to stare at your code and re-read the book until your mistake decides to reveal itself. A book *can* be full of carefully chosen examples that expose common programming mistakes in a timely manner. Learn to Program in C is chock full of such examples, in fact, there are a few example programs that serve no purpose other than to show you what it is like when a bug strikes. (One example will even crash your system for you!)

Learn to Program in C is full of examples, period. Tons and tons of examples that you can type in, execute, and learn from (learning, as implied by the title, after all, is the whole purpose behind the course). I like that. I like that a lot. And the examples aren't trivial and obvious, they do a good job of driving home the more subtle intricacies of C (the difference between `++i` and `i++`, why `(*i) + 2` is the same thing as `i[2]`, etc). The way to learn *any* language (human or computer) is to practice that language, and the multitudinous examples and problems in Learn to Program in C do a great job of driving home principles and techniques. If you take advantage of these exercises and problems, you'll come out of Learn to Program in C with a very firm foundation in the C language. Don't worry about applying you're newfound knowledge either; you won't be just writing do-while loops, you write a full-fledged stand-alone graphic brick-out program in the last lesson!

## A Few Problems

Learn to Program in C has no index. None whatsoever. In the year that I've had Learn to Program in C, there have been countless times that I've wanted to quickly find a reference I'd read, and wind up speed-reading the whole course to find what I was looking for. Learn to Program in C is a vast wealth of knowledge, on the C language, on programming and on the ORCA environment, but if you ever forget exactly where that information was that you wanted, expect to spend a few minutes sitting down, thumbing through the 322 pages of the course. Also, a few handy dandy reference pages would have been nice; say a page for `scanf` and `printf` conversion specifiers, a page for operator precedences, and a list of (at least some of the more often used) ANSI functions. Such reference pages are the kinds of things that cut program development times for everyone from the rank beginner to those hacker types.

There really isn't anything that's been left out of Learn to Program in C, although

there is a lot of ground that still remains to be covered. You can't expect one book to cover every detail and every implication of every feature of the C language, so don't expect to buy Learn to Program in C and never look at another C manual. You'd be cheating yourself. Learn to Program in C is not a course on data structures, although it does cover several of the more important ones, nor is it the last word in sorting and searching, though it touches on both. As a foundation in the C language, I don't see how you can go wrong with Learn to Program in C. (If you want a good second reference to C, be sure to check my Learn to Program in Pascal review next issue. I'll be searching for a good supplement C reference in the interim. I use *A Book on C* by Kelly and Pohl, but I'm going to see if I can't find something better as a reference.)

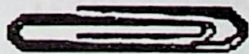
Well, I guess that pretty much does it for my critique of Learn to Program in C. If you are wanting a good solid foundation in C then this is the way to go. However, as Diz so aptly put it while he was editing

this, "there are some people that simply *can not* program regardless of the instruction that you give"; that's not meant as a cut on anyone, it is simply true. If you've never done any programming before, and would like to see if programming is for you, I would *not* recommend Learn to Program in C. (Remember when I said we were going to save the "From a beginners standpoint" for Pascal? Well...) It's not that Learn to Program in C isn't a good product, it is, but C is simply the wrong language for the rank beginner to jump into. As a general rule, Pascal and BASIC are better languages for learning the fundamentals of programming. If you have previous programming experience, and would like to learn C, I would definitely recommend Learn to Program in C, but I would also recommend that you get a good C reference to compliment it. If you don't have any previous programming experience, the stick around for my review of Learn to Program in Pascal, next issue, same Bat Time, same Bat Magazine. GS+

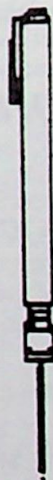
# APP - L - JACK



Please Lord  
A Manual Ejection Tool  
which replaces the



For 3.5 Disk Drives



\$ 5.00 ea. - 12.00 S & H

Mail Check or M. Order To  
Diana K. Gershowitz  
644 Browne St.  
Brownsville, Texas 78520

FREE



SOFTWARE

\* WITH EVERY PURCHASE

E-Mail  
SpeedLimit  
America Online

# The HyperStuff Collection

First in this innovative series is *ClipTunes™*

*ClipTunes™* is a collection of *MidiSynth™* format songs. Included in the package is an *Xcmd* player for *HyperStudio™* and *HyperCard IIGS™*. The "Synth" *Xcmd* allows the *HyperCard™* and *HyperStudio* user to easily play 7 voice stereo music from within their own stacks. The songs were specially arranged for the *Hypermedia* environment and play in the background so you can open menus, click buttons, switch cards, animate Icons all while the music continues to play. Selections range from Holiday music, marches, songs for special occasions, and music to switch cards by. *ClipTunes* comes complete with tunes, sample stacks, *Xcmd* player, and *MidiSynth* tool (Tool 35). Suggested Retail Price .....\$39.95

Second in the *HyperStuff Collection™* is *ClipArt Plus™*

*ClipArt Plus* contains 20 screens of the finest *ClipArt* available for the *Apple IIGS*. Categories include: Animals, trains, food, boats, construction, office, tools, and just about everything else including a kitchen sink. To compliment this fine *ClipArt*, included are 4 New Desk Accessories and as a bonus to *HyperCard IIGS* users, 4 *Xcmds* in a small demo stack.

*Icon Button NDA* makes creating *HyperCard* format Icons a breeze. *Icon Button NDA* lets you "Clip" out sections of any *SHR* screen and saves it right to the stack of your choice. *GetPic Xcmd* lets you display *ClipArt Plus* pictures, or pictures from most graphic formats including *PrintShop IIGS™*. Once displayed, selecting a portion of the picture for use in backgrounds, cards, or buttons becomes child's play. Simply draw a box around the image you want and click the mouse. *Icon Mover Xcmd* lets you copy Icons from stack to stack. With *Vclip Xcmd* you can view (or print) the contents of the *Clipboard*. Once you use *ClipIt NDA* you will wonder how you ever managed without it. *ClipIt* works great with any program that uses the standard *Clipboard*.

The complete *ClipArt Plus* package includes 20 screens of *ClipArt*, 4 New Desk Accessories, and 4 *Xcmds* for *HyperCard IIGS*. Suggested Retail Price ...\$39.95.

## *GDL™ 2.0 Graphic Disk Labeler*

Create Colorful labels for your 3.5" disks. *GDL* imports popular graphic formats including *SHR* pictures, Icons, and *PrintShop IIGS* graphics. *GDL* uses *Apple IIGS* fonts, and includes provisions for changing styles & colors. Text can be superimposed over the graphics to achieve special effects. *GDL* includes *Paint Tools* for editing artwork and includes 320 and 640 mode versions. Complete with 50 labels and label grabber *NDA*. (1 MEG. required. for *Imagewriter II*.) Suggested Retail Price.....\$39.95

Also available.....*GDL* Graphic Disk with over 100 label files. Also included are Fonts, Icons, & *PrintShop IIGS* Graphics....\$9.50

.....and extra labels (250 continuous).....\$11.95 per package, plus \$2.50 shipping in U.S.

Available from most major software mail vendors or contact:  
(516) 732-3771 (516) 360-0797  
or America-On-Line Direct Connect Area

TRIAD VENTURE INC.  
P.O.Box 12201  
Hauppauge, New York 11788

*PrintShop* is a registered TradeMark of Broderbund Software.  
*Hyperstuff*, *ClipTunes*, and *ClipArt Plus* and *GDL* are registered TradeMarks of Triad Venture Inc.  
*HyperStudio* is a registered TradeMark of Roger Wagner Publishing.  
*MidiSynth*, *Hypercard IIGS*, and *APPLE IIGS* are registered Trade Marks of Apple Computer, Inc.

# The Software Bargain Bin

By Brian M. Winn

This issue I am exploring the vast wealth of shareware utility software available for the IIGS. Utilities are often created just to help you simplify and speed-up the ordinary task of running your system. For example, the Font-DA Installer NDA by Francois Uhrich allows you to install and remove NDAs, CDAs, and Fonts on the fly (without having to reboot the system to get them to work). Following is a brief review of three such utilities that are wonderful to have at your fingertips; Calculator NDA, Chronos II, and UltraBlank.

And since we announced that we were going to start reviewing shareware products, we have received a few shareware products sent in by their authors. Thus, we also have a review of the shareware program Astronomer GS in this issue.

## Calculator v1.0 NDA

Shareware price: \$15.00

Jeff Hartkopf  
533 Wildrose Court  
Louisville, CO 80027

If you have ever used a Macintosh, you will notice a basic calculator desk accessory under the Apple menu. This desk accessory is included in the Macintosh's standard system software. Unfortunately, this option has, in the past, been excluded from the IIGS System Software. However, do not complain. You can obtain a full-functioned calculator NDA for the IIGS through the shareware markets.

This calculator is not the simple add and subtract calculator found on the Macintosh. Calculator v1.0 by Jeff Hartkopf features some functions you would find on only high-powered, expensive Hewlett Packards. You can perform all your standard functions; +, -, /, \*, ln, log, sin, cos, tan, x!, 1/x, x^y, sqrt, rnd, %, EE. It also has inverse trigonometric functions (arcsin), hyperbolic functions (sinh), and a storage bank (memory). You can convert from base-10 (decimal), to base-16 (hexadecimal), to base-2 (binary), and back. All the functions are obtainable by clicking on

them with the mouse or with key equivalents. This is a great little desk accessory. Whether you are an accountant, a student, or a programmer, I am sure you will find Calculator v2.0 useful. It is well worth the shareware fee.

## Chronos II v2.0 NDA

Shareware price: \$5.00 to \$10.00

Kris Olsson  
American Embassy Box 215  
APO San Francisco, CA 96503

Chronos II is a wonderful little DA that places useful information in the right side of the menu bar. After Chronos is installed, it will appear automatically in the menu bar. You will first see the time (for example, 4:48:36 PM). If you just click on the clock, Chronos will display the date. Click again and you will see a chronograph. It will time to the nearest second and function even when Chronos is turned off. Click again and the chronograph transforms into a message of how much free RAM is available in the system. Once more and you will see how much the largest free block of memory in your system is. Yes, and yet one more click will display x,y coordinates of the mouse's location. When you click on it one last time, you will be presented again with the clock.

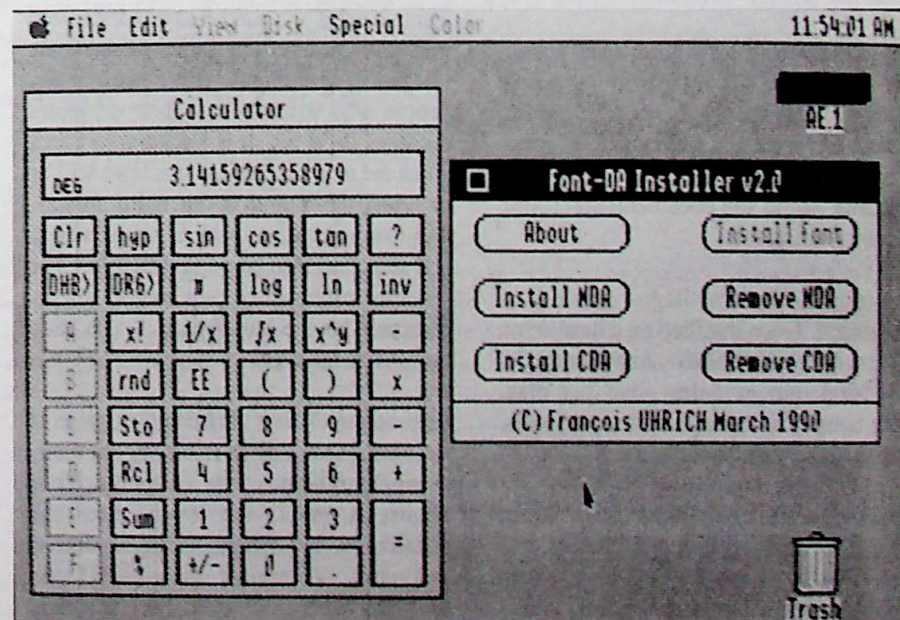
Chronos II covers all of the bases. You can deactivate and reactivate it by just selecting it in the Apple menu. If you are using a program that has many commands on the menu bar, such as HyperStudio, you can drag the display to anywhere on the menu bar that has space to display the information. Chronos II will remember this location, even on power-down. It works in both 640 mode and 320 mode and will not be displayed unless there is a menu bar visible. This is a wonderful little utility and is a "must have" if you are on a schedule.

## UltraBlank v1.46

Shareware price: \$15.00

Robert S. Claney  
2370-E Shady Oaks Rd.  
Marshalltown, IA 50158-9575

Have you ever looked at a blank computer screen and saw the faint image of a text screen? This is the result of "screen burn-in." If you often leave your computer on for long periods of time without changing the screen appearance, your monitor may suffer the same fate. Over the past few years I have searched for a good screen blanker to solve this problem. A screen blanker essentially blanks the screen when no activity (mouse movement, keyboard



input) takes place for a specified period of time. Some screen blankers just turn the screen to black (such as UltraBlank) while a few fancier ones display animated graphics to entertain you while you are not working on the computer.

UltraBlank is a system Init that takes the form of a NDA under the Apple menu and a CDA in the control panel. You can set the desired time to blank in the NDA or CDA UltraBlank is active in both GS/OS applications and ProDOS 8 programs, such as Appleworks. After the desired time (you can set it from 1 to 30 minutes) your screen will blank to black if you do not perform any input. To get your screen back to normal just hit a key or move the mouse a bit. Unlike some blankers I have used in the past, UltraBlank does not interrupt or freeze the computers processing. If you are printing a document, downloading a file, or calculating a spreadsheet, UltraBlank will blank the screen but not interfere with the program's functions. Kinda like multitasking, huh? Maybe not, but it is still pretty cool.

### **Astronomer GS**

Shareware price: \$19.00

Larry D. Bell  
2537 Jefferson St.  
Long Beach, CA 90810

Reviewed by Robert A. Ribaric

Astronomer GS was intended by its author, Larry Bell, to "make it possible for people to appreciate the night sky." As an amateur astronomer, I welcome this type of software. I have used other astronomy programs, but as the documentation states, this one is different.

First of all, it is rather large—seven disks to be exact! Once installed on a hard drive, it takes up nearly 3.5MB. Astronomer GS is divided into modules—one per disk. These consist of startup, moon, sun, tools, utilities, and two planet disks.

The program has many capabilities. It can find rise/set times, eclipse occurrences, and moon phases. It can also calculate object conjunctions and the angle between them.

Several interesting graphics features are also employed. Representations of the planets' orbital positions, the moon's monthly phase changes, and solar elongations are a few of the more useful options. Information on any star can be found using its coordinates (right-ascension and declination). Hardcopies can also be sent to your printer.

Astronomer GS can make its predictions with a great deal of accuracy when the user inputs certain information. The program asks for data such as date, time, location, and weather information. This is where some research might need to be done. Using a star-finder, I double-checked the program's output, and it was correct for my location here at the GS+ offices. Looking outside, I also spotted Jupiter where the program said it would be. Astronomer GS seems to be very precise.

The included documentation is very well done and includes many illustrations, diagrams, and screen shots. The information is all there, however the manual jumps around a bit. Some things must be searched for, but the booklet serves its purpose.

Astronomer GS can provide a wealth of information to the user. If you know about equatorial coordinates, you can determine where any point in the sky will be at any time. Serious astronomers will also appreciate the "dark adapt" function. This changes the screen to shades of red that won't destroy your night-vision while stargazing (although I don't know many people who would wheel their computer outdoors for this). It is also neat to check when the next solar or lunar eclipse will be or when this month's full moon occurs. The many graphics features are excellent, and some can also be printed in color. The program offers many advantages to the computer-literate astronomer. It also has a few cute surprises.

Astronomer GS is a very complex piece of software. Seven disks is simply too many to juggle to be practical. A hard drive is almost a must, but even then the installation and system configuration is awkward. The user must "tell" the program where to look for its many

sections. This is done in a somewhat unorthodox manner which even had Diz temporarily confused. As the program itself goes, a list of star coordinates (right-ascensions and declinations) should definitely be included. This is the data that a die-hard astronomer would use for his telescope's equatorial mounting, but I didn't even have one handy. None of the program's star information can be utilized without such a list. One for at least the major stars should be included in the documentation or the program itself.

One annoying glitch occurs when you try to print something. The program uses a straight screen dump for this feature. Because of this, when you open the Control Panel to configure your printer, a blank spot will remain afterwards. You must set it up ahead of time to get a good hardcopy. Finally, some functions take a really long time and can't be easily aborted, but this isn't necessarily the program's fault.

The author's documentation suggests that Astronomer GS would be good to get beginners interested in the wonders of celestial viewing. Although its creator states that this is no simple sky simulation (like other programs), Astronomer GS isn't really suited for anyone but the serious observer. I would only recommend this software to a user who is both an intermediate astronomer and computer user. A hard drive is also strongly suggested. However if you do fit these requirements, this could be the program for you. The minor programming bugs could be easily remedied, and this is actually what shareware is all about. Your \$19.00 fee could lead to an improved version. Coincidentally, just as we were about to go to press I received a disk from the author labelled "Bug Fix." This apparently corrects some of the aforementioned problems (although I did not have time to test it). If you are interested, I advise that you mail-order the program directly from the author. A download could literally take hours (not to mention the money you would spend). Astronomer GS would be a very valuable tool to the right user, so if you would like these features in a shareware program, please support it.

GS+



# GS+ Classifieds

## Free (Almost) Software

You can now receive File Detective v1.04+ and File Passage v1.02+ (a filtered file transit system) by sending \$2.50 directly to the original programmer!

### Contact:

Charles Bartley  
1310 Cholla Court  
Lake Havasu City, AZ 86403

## Magic File Cabinet

Fantastic new AppleWorks 3.0 database extender. Overcomes DB constraints. Now unlimited textual material instantly available for each of your DB records. Read glowing reviews in *NAUG's Forum*, *WAPi Journal*, *inCider/A+*. Multitude of uses—home, school, business. Must have UltraMacros 3.1 installed. Only \$15 +\$2 S/H (MD add \$.85). State disk size, 3.5 or 5.25. Information available.

### Contact:

Magical Software  
8255 Canning Terrace  
Greenbelt, MD 20770  
(301) 345-3230

## IIGS Systems For Sale

IIGS ROM 03 (1 MB). Æ GS-RAM Ultra 1 MB. 1200 baud Æ Modem. Æ TransWarp GS with 32K cache. 40 MB Q Drive. RamFAST SCSI. Two 3.5-inch AMR drives. One Apple 5.25-inch drive. Apple RGB monitor. ImageWriter II. Kensington mouse. CH Joy Stick. \$1200 of software. \$5000 total investment, only \$1875. Call (516) 728-2130 days.

### Contact:

Joseph Badgeley  
229-95 West Montauk Hwy.  
Hampton Bays, NY 11946

For sale, basic Apple IIGS system plus Sonic Blaster, Æ parallel, excellent 2400 baud modem w/MNP-5, two 3.5-inch drives, Æ Conserver and much more!

### Contact:

Jimmy Johnson  
2420 Kincaid  
Eugene, OR 97405  
(503) 344-9880

## Modem For Sale

Brand New, Unused Applied Engineering 2400 Data Link Internal Modem. Can't use because of French PTT (MINITEL) restrictions. \$75 including complete documentation and postage.

### Contact:

Henry Sherwood  
av de la Molle  
40150 HOSSEGOR  
France  
FAX: 58 43 81 91

## Great Bargains!

Æ 20MB Vulcan - \$175!  
Juki 6100 Printer - \$150!  
Grappler Plus Printer Card - \$45!  
All in A-1 condition. You pay shipping. With manuals and software!

### Contact:

LMJ  
3516 W 109th St  
Inglewood, CA 90303  
(301) 671-0740

Readers can place an ad in the *GS+* Classifieds for only \$5. This cost buys 25 words in one issue of *GS+*. Additional words are just 25 cents each. The *GS+* Classifieds are the perfect way to contact thousands of other IIGS owners.

The deadline for inclusion of a classified ad in the next issue (Volume 3, Number 4) of *GS+* is March 15, 1992. Simply fill out a photocopy of the coupon below; or send your ad along with your name, address, phone number, number of issues to run, and payment (made payable to EGO Systems) to *GS+* Classifieds, c/o EGO Systems, P.O. Box 15366, Chattanooga, TN 37415; or call us at (615) 843-3988, Monday through Friday between 9 a.m. and 6 p.m. EST, to place an ad with your MasterCard or VISA.

## GS+ Classified Ad Order Form

Ad copy: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Number of issues to run: \_\_\_\_\_ Number of words: \_\_\_\_\_ Total enclosed: \$ \_\_\_\_\_  
Name: \_\_\_\_\_ Phone: (\_\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

No, you aren't seeing things—it's been over a year and I've finally decided to change the version number of EGOed from "1.3x" to "1.4" (New readers should be sure to read the "What Is EGOed?" sidebar for introductory information on EGOed.) What could be so special you ask? How about (finally!) an honest-to-gosh *replace* function? But not just any replace function! The replace function in EGOed v1.4 is the most powerful replace utility you will find on the IIGS (or most other computers for that matter!) Prove it? I will, right after I tell you about the other changes in this version of EGOed.

### Cosmetic Changes

First of all, you will notice that the items 'Curly Quotes' and 'Straight Quotes' have been moved from the Edit menu to the Style menu. Second, the Pref formerly known as "Word Wrap Off" has been changed to the less-confusing, "Automatic Word Wrap." The old wording of this preference was quite confusing for some readers (myself included), hopefully, this new wording will eliminate this confusion. When this preference is checked, text that is too long to fit on one line in the EGOed window will automatically wrap to the next line. For more information on this preference, be sure to read the file **EGOed.Docs** on your **GS+** Disk.

### Something Else That's New

In addition to these cosmetic changes, EGOed v1.4 has one other new feature (besides the replace function) that you should know about. This new feature is in the File menu and it's called "Import." When you select Import, the standard open file dialog appears allowing you to select a file to import. The file you select is then inserted (at the insertion point) into the document you are currently editing. This allows you to merge two (or more) files together without opening one, selecting all of the text, copying it to the clipboard and then opening the next file and pasting the text into it. This has already proven to be a very useful feature here at the office.

### The Biggie!

For quite some time now, people have been writing and phoning in asking for just one thing in the next version of EGOed: "Find and Replace" (OK, so it's really two things—go figure.) Well EGOed v1.4 gives it to you in a big way! To use the new Replace feature, just type some text into the EGOed window (or open a file) and press Command-R (or select Replace from the Edit menu). The EGOed Replace window will then appear (see photo).

Before I start explaining how things work, I need to take a few paragraphs to explain

### What Is EGOed?

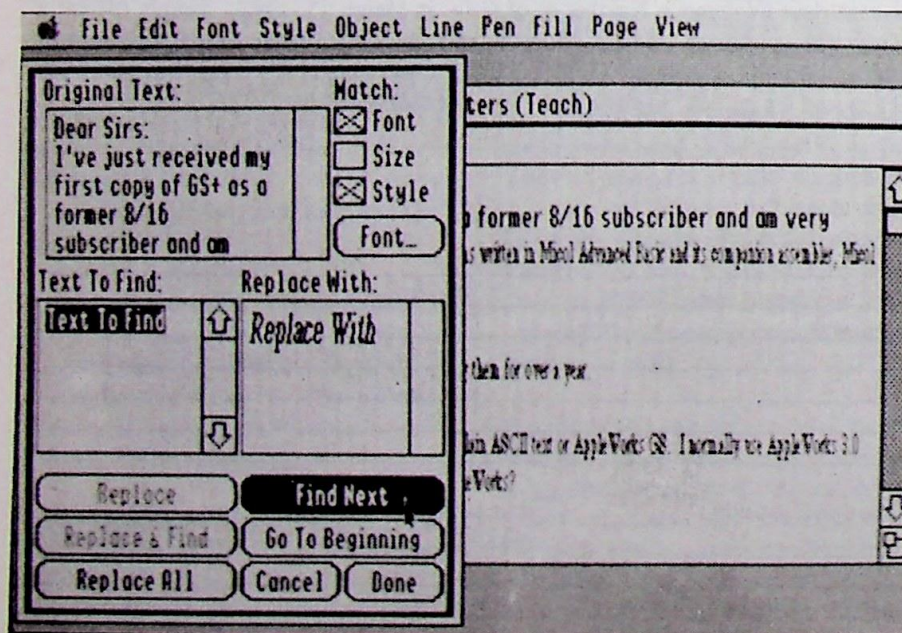
*EGOed* is a New Desk Accessory (NDA) text editor. When you install EGOed on your startup disk, you can use it to edit and print ASCII text, Teach, AppleWorks Classic and AppleWorks GS word processor files from inside any desktop program that properly supports NDAs. To use EGOed v1.4, you *must* install it on a IIGS System Software v5.0.2 (or later) startup disk with at least 46K of free space. For more information on installing and using EGOed, see "How To Use The **GS+** Disk."

all of the controls that you see in the window. Since the EGOed Replace window is so unusual, I'll have to start in the *middle* of the window and skip around a bit.

On the left hand side, in the middle of the window, you will see a TextEdit box marked "Text To Find:". As you might expect, this is where you type in the text that you want EGOed to find. I'll refer to the text in this box as the "text to find." Next to that, you will see another TextEdit box marked "Replace With:". This is where you type the text that you want to replace the text that you find. I'll refer to this text as the "replacement text." Now, let's move up to the top of the window.

At the top of the window, you will see a third TextEdit box that is marked "Original Text:". This box contains a *copy* of the text that is in the EGOed window. Why a copy? Well, by working with a copy, you can make as many changes as you like to the text and, if you realize you made a mistake, you can discard the copy along with all of the incorrect changes. I'll refer to this text as the "original text." Now, let's skip to the bottom of the window and look at all of those buttons. (No, I haven't forgotten the check boxes!)

At the bottom of the window, on the right hand side is the "Find Next" button. Clicking on this button tells EGOed to search the original text for the next



occurrence of the text to find. If the text is found, EGOed will draw a box around it in the "Original Text:" box. If the text is not found, EGOed will display a dialog telling you so. The next button, "Go To Beginning" takes you back to the top of the text in the "Original Text:" box. The "Cancel" button, discards all of the changes you have made to the original text and returns you to the EGOed window. The "Done" button confirms all of the changes you have made and replaces the text in the EGOed window with the text in the "Original Text:" box.

To the left of these buttons are three others: "Replace," "Replace & Find," and "Replace All." Clicking on the "Replace" button replaces the current selection in the original text with the replacement text. Clicking on the "Replace & Find" button does the same thing and then it searches for the next occurrence of the text to find. Clicking on "Replace All" starts at the current selection in the original text and finds and replaces every occurrence of the text to find with the replacement text. Now, you may have noticed that the replacement text shown in the screen photo is not your standard 8-point Shaston typeface. In fact, it's 14-point, bold, italic Times. When you click on one of the "Replace..." buttons, you don't just get the replacement *text*, you also get all of its font, size and style information! So, for example, we can go through all of our articles and replace "GS+" with "GS+!" This alone would make EGOed's Replace function the most powerful yet available for the IIGS... but that isn't all it can do!

Moving back to the top of the window, on the right hand side, you will see three check boxes, "Font," "Size," and "Style," and a button labeled "Font...". Let's talk about the "Font..." button first. Clicking on this button brings up the standard Choose Font dialog (just like the one you get when you select "Choose Font..." from the EGOed Font menu). You then use this dialog to set the font, size and style of the text that you currently have selected in any of the three TextEdit boxes. (Yes, you can directly edit the original text in the Replace window!). That's how I got the replacement text to look the way it does in the photo.

You may be thinking, "I understand why I would want my replacement text to be different fonts and sizes and stuff like that... but what good does it do me to change the font of the text I'm trying to find?" That's where the three little check boxes come in. These check boxes tell EGOed whether or not you want it to ignore the font, size and style information of the text to find when it is searching the original text. For an example, let's look at the screen photo again. The text to find is "Text To Find". The font is Shaston, its size is 8-points, and it has no styles applied to it (i.e. it's "plain" text). Looking at the check boxes, we see that "Font" and "Style" have both been checked. So, when I click on the "Find Next" button, EGOed will search for the string "Text To Find". If it finds it, it will then check to see if the found text is "Shaston plain." Since the "Size" box has not been checked, EGOed won't check the size. If the font and style *don't* match, EGOed will ignore the text and continue to search for the next occurrence of the text to find. If the font and Style *do* match, EGOed will draw a box around the found text in the "Original Text:" box.

### Keystrokes

There are a lot of buttons in the Replace window, and everyone of them has a keystroke equivalent. I tried to make all of the key equivalents as logical as possible, and, if there was already a similar function in EGOed, I made the keystroke the same for the Replace window as for the EGOed window. For example, in the EGOed window, you press Command-G to select the Find Next menu item, so in the Replace window, you press Command-G to activate the Find Next button. While I'm on the subject of keystrokes, it is important to note that you can type *any* character you want into any of the three TextEdit boxes in the Replace window. The only catch is that if you want to type a carriage return, make sure you use the *return* key and not the *enter* key on the keypad! So, you can, if you wish, search for carriage returns and replace them with tabs. Or, you could search for tabs and replace them with nothing at all! (Just select all of the replacement text and press the delete key!) This is a great way to strip tabs or other unwanted characters from your files.

Having said all of that, take a look at Figure 1 for a list of the key equivalent for the controls in the Find and Replace windows.

### Find... Again!

Speaking of the Find window, I should also point out that the Find window has been changed to implement matching on font, size, and style information. And, the text that you type into the Find window, will show up in the "Text To Find:" box of the Replace window, and vice-versa. Other than that, the Find window works just like it did before. (See the file EGOed.Docs on your GS+ Disk for more complete information.)

### What's Missing?

Well, two things that are blatantly missing are the ability to do a case sensitive find and the ability to find "whole words." The main reason for this was that they simply wouldn't fit in the Replace window! (The Replace window works equally well in 640 and 320 mode.) I hope to have these implemented just as soon as I can figure out where to put them!

### That's All For This Time!

Well, actually, there is a *lot* more to say about this version of EGOed (like how all of this stuff actually works), but I've only got two pages in this issue (and I have to share that with a photo and a Figure). So, I'll have to cut it short and tell you to be sure to read the files EGOed.Docs and EGOed.1.4.Tech, both of which are on your GS+ Disk. GS+

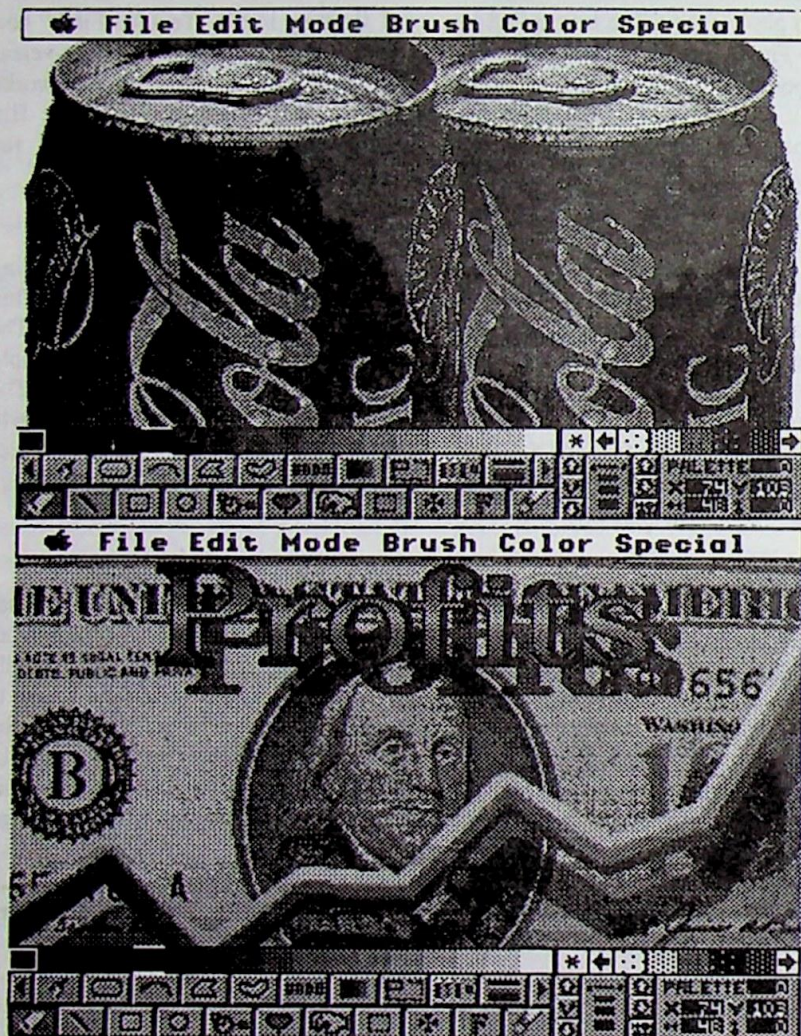
**Figure 1 - Key Equivalents For The Find & Replace Windows**

| <u>Control</u>   | <u>Keystroke</u>  |
|------------------|-------------------|
| Cancel           | csc               |
| Done°            | enter (on keypad) |
| Find•            | enter (on keypad) |
| Find Next°       | Command-G         |
| Font...          | Command-Y         |
| Go To Beginning° | option-Up Arrow   |
| Match Font       | Command-F         |
| Match Size       | Command-S         |
| Match Style      | Command-T         |
| Replace°         | Command-R         |
| Replace & Find°  | Command-Shift-R   |
| Replace All°     | Command-A         |

• Find Only ° Replace Only

# DreamGrafix™

The ONLY 3200/256/16 color paint program for the Apple IIGS®



## List of features:

- Load, display, edit, and save ALL types of super hires pictures including pictures which display up to an amazing 3200 colors
- Support for ALL known Super Hires graphics format including APF, French 3200, and PaintWorks format
- Multiple graphics editing mode including full 3200 color editing and four size of fatbits
- Complete tool set including pencil, line, oval, air brush, custom brush etc.
- Compress and display \$C2 animations
- Standard desktop interface with an extended tool bar interface
- Support for 256 color printing
- GS/OS® based for compatibility with NDAs and System Software
- Compatible with all system accelerators
- No copy protection, hard drive installable, and much more...

## II INFINITUM

List Price: \$99.95

Also available through Quality Computers and TMS Peripherals

To order DreamGrafix, please send a check or money order to the following address:  
DreamWorld Software, PO Box 830, Iowa City, IA 52244-0830  
OR order by phone at (319) 338-6491

Add \$5.00 for shipping within United States. Canada add \$8.00. Overseas add \$20.00  
MasterCard/ Visa accepted.

†DreamGrafix is a trademark of DreamWorld Software.  
Apple IIGS and GS/OS are registered trademarks of Apple Inc.

# Buying & Using Mac Hard Disks

By Greg Zimmerman

So, you've finally decided to take the plunge and buy the hard drive you've always wanted. Or maybe your old 40MB drive just doesn't have enough room anymore. Whatever the reason, you're in the market for a new hard drive for your IIGS, something in the 100MB range!

## Where To Shop... And Why

Figure 1 shows a sampling of what you find for external drives simply by popping open a couple of publications to see what's available. (Why am I only looking at *external* drives? Because the IIGS can't easily use Macintosh *internal* drives.)

Now to be fair, in *MacWorld*, I expressly looked for the best prices out of a great many drive advertisements. But there sure were a lot of them in the range of \$379 to \$429 to choose from.

And hopefully, a quick look at the prices advertised for what in many instances are *identical* pieces of equipment will show you the reason it might pay, even if you have no interest in other computing platforms (Macs, PC clones, etc), to keep yourself somewhat informed about what's going on in these other worlds.

Simply put, the market for many other computers is much bigger than the market

for IIGS computers. This leads to larger markets for suppliers of what the car business calls "after market" equipment. Computer people call it peripheral or add-on equipment, I call it "stuff." The third party suppliers of Mac stuff are far more numerous than suppliers to our IIGS market, hence there is more competition between them. Unfortunately, I don't see a lot of this type of competition in the IIGS market.

The same applies to hard drive retailers. When referring to "hard drive retailers," I'm talking about the group of sellers who generally take a drive mechanism from a manufacturer, a case from a case supplier, put the two together, add a manual and maybe some software (both for formatting and setup as well as public domain and shareware files), and then advertise their unique product like crazy for the purpose of selling it to people like you and me.

There are a *lot* of these dealers in the Mac market, and there are precious few in the IIGS market. This means that prices are substantially lower in the Mac market for external (and internal) hard drives than they are in the IIGS world.

Now normally you might think, "who gives a hen's peck if Mac people can buy

cheaper than we can, what's the point? Their peripherals don't work with our machines anyway!" And for many add-ons you would be correct, they won't work on your IIGS if they were specifically made for a Mac. But with hard drives, you would be a victim of disorganized thinking if you tried to follow this line of reasoning.

The fact is most Mac hard drives will work on the IIGS! The only thing you'd need to use them is a SCSI card for your IIGS and a slot to put it in. The reason they'll work is because they are not "Mac" hard drives, they are SCSI hard drives that are being marketed to Mac users, and that is the crucial difference.

So, it makes no sense to limit yourself when hard drive shopping, to the market for hard drives as it appears in publications catering to Apple IIGS owners. And with that my friends, we can now get back to our story.

## Questions, Questions...

So, you are going to take the plunge and buy that new 100MB external. There is no question that you can do this a lot cheaper if you buy your drive from a retailer marketing to Mac users. But because you no longer have a retailer

Figure 1

| <u>Publication</u>            | <u>Page #</u> | <u>Vendor</u>             | <u>Drive</u>    | <u>Price</u> |
|-------------------------------|---------------|---------------------------|-----------------|--------------|
| <i>InCider</i> February 1992  | 2             | Quality Computers         | 100MB QDrive    | \$589.95     |
|                               | 9             | LRO Computer Sales        | NC PRO 120      | \$450        |
|                               | 11            | Price Busters             | 105MB Pro-Drive | \$599*       |
|                               | 13            | TMS Peripherals           | 105MB Quantum   | \$479†       |
|                               | 53            | Preferred Computing       | 100MB Quantum   | \$679*       |
| <i>MacWorld</i> February 1992 | 359           | Hard Drives International | 105MB Quantum   | \$399        |
|                               | 365           | Third Wave Computing      | 105MB           | \$429        |
|                               | 366           | MacLand                   | 105MB Quantum   | \$389°       |
|                               | 378           | APS                       | 105MB Quantum   | \$429        |
|                               | 382           | Wholesale 54              | 105MB Quantum   | \$379        |
|                               | 393           | Relax Technology          | 105MB Quantum   | \$399        |

† See review in *GS+* V3.N1

\* Price includes the Apple II High-Speed (DMA) SCSI-card. Approximately a \$100 value.

° See review elsewhere in this issue.

doing your IIGS thinking for your drive setup for you, you cannot throw caution completely to the wind. As with all major purchases, the price shopping will save you the money, but the care, diligence, and the questions you ask, will save you the headaches.

When you talk to a Mac retailer, and you ask them "Will this drive work on my IIGS when attached to a RamFAST/SCSI card in slot 7?" the person on the other end of the phone is likely to giggle audibly and refer you to his supervisor, who is likely to know even less than the guy you talked to in the first place. More appropriate questions would be:

1. Is this an external SCSI drive?

"Yes" is the answer you are looking for. If the answer is "no," you should probably say "Thank you very much for your time." and end the conversation.

2. Do you have a 30-day "no questions asked" return policy that is in writing, which will allow me to return this drive for *any* reason or for *no* reason and get a complete refund if I do so within 30 days?

On this question, if the seller does have such a policy, you might find that *you* will be responsible for the shipping if you return the drive for "no" reason. Still, I would look very hard for a seller with this kind of assurance. It should mean that they are not shipping garbage, because you have the right to just ship it back to them with no or with little penalty. Also, if it just won't work with your IIGS, you won't be taking out an ad in the local classifieds trying to sell your "like new" Mac drive.

3. Do you take major credit cards? Do you take the one I want to use?

The answer to both of these questions should be "yes." It is a very good policy to charge something like this on your credit card for a couple of reasons. First, these retailers could not live without the credit card companies, so if you get in any trouble, the credit card company may (no guarantee here) be a big help to you if you

have a problem and want to dispute the charge. Second, many cards have programs wherein they extend the warranty of products you buy when using the card, giving you added protection if you encounter a problem with the product after the original warranty expires.

4. Are you going to charge my credit card only when you ship the drive?

"Yes" is the only acceptable answer to this question. Many people have bought things from mail-order companies, paid for them, and then the company goes belly up as their money vanishes. This won't be your problem if they can only charge your card when they ship, and of course, you have the credit card company to complain to if a charge appears on your bill for merchandise which you did not receive.

5. What are your shipping charges?

In addition to the advertised price, most retailers will charge anywhere from \$3 to \$20 for shipping. In a close call among sellers as to who has the better deal on identical products, the shipping costs may swing it in favor of one or the other.

6. Are there any charges other than the advertised price and the shipping?

This should be "no," but in some instances, it can be a legitimate "yes." For example, a couple of the largest hard drive retailers are located here in Arizona. If I buy from them, I have lower shipping charges, but I also have to pay sales tax because I live in the same state. Stay on your toes, and make sure you get the *total* amount that will be charged to your credit card. This total is the important number when making price comparisons.

7. Does the drive look like the one pictured in your ad? (If there was a picture.)

8. Is the case the "platinum" color that matches the Mac (IIGS)?

9. Is the power supply at least 40 watts?

10. Are there two SCSI ports so I can daisychain devices?

11. Is the SCSI ID set externally, or do I have to open the drive up and do something that will make me nervous?

12. Is the SCSI termination external or internal, and exactly what is involved in changing the termination?

13. Are the power cord and SCSI cable included in the price?

This one can be a little tricky if you already have a SCSI device (like a hard drive) attached to your IIGS that you intend to daisychain with your new drive. If you are hooking your new drive directly up to a Apple II High-Speed SCSI card, you will need the standard 25 to 50 pin cable that they usually ship with Mac drives. The 25 pin attaches to the SCSI card and the 50 pin to the drive. But, if you already have, say, a small drive hooked up, and you simply want to add this new one to your chain (daisychain it), then you will probably need a 50 pin to 50 pin cable to connect the extra SCSI port on the back of your existing drive with the new drive. And, while most drives have 50 pin SCSI ports, not all do, particularly older ones, so ask, and look at what you already have so that you can get the right cable with the drive for what you intend to do. If you don't, you may end up spending \$20 or \$30 at your local whatever store to get the right one, and you may lose some self esteem and feel stupid if you forget to do this.

14. Does the drive have an internal fan?

This is an important point, any external drive you buy should come equipped with a fan. Keeping equipment cool will help it last longer.

15. What are the dimensions of the drive?

16. What manufacturer makes the actual drive mechanism?

This question is a little far out for most people (including me); the name means little, except that you either have or have not heard it before. And in many instances, the drive mechanism name (such as Quantum) is advertised along

with the price, rendering this question meaningless. [Note that at this point in time, Quantum drives are generally considered the most reliable drives available. This is the main reason that you should ask this question. - Editor]

17. How long is the included SCSI cable?

Shorter cables cost the seller less money, so some of the cables are pretty short. If you know where you plan to put the drive, be certain that the cable they are shipping to you is long enough to reach. I have gotten cables from 18 to 36 inches long from different sellers. All were long enough to put the drive right next to the computer, but a couple were not good for much room after that.

And of course, if you are happy with the answers to all these questions, you can ask the most important question of all:

18. When can I get the sucker into my house?

I've noticed that most people, once they make the decision to buy something major, something they have lived without their whole lives, once ordered, they go crazy waiting and watching for it to be delivered, and they act like (and indeed believe) that they really need whatever it is *now*, and that they cannot continue to suffer without it! All this when just a few days earlier, they were getting along just fine not having it, not knowing they were going to buy it. I have also seen many people get very (and permanently) upset at a company for slow delivery because of the above mentioned leaning which most people have. So find out if it is going to take two days or two weeks before you take the plunge into "mailman watching" ("Gladys, I know that was a brown truck that just went right past our house, but maybe he's turning around so he can park in front of the house on this side of the street").

**It's Here!**

So, you did it, and you got it, and you open it, and you hook it up, and it doesn't work! Of course it doesn't work, it came formatted for a Mac and you have a IIGS. The thing needs to be reformatted for the

IIGS, the appropriate driver needs to be installed, you may need to flip some switches on your SCSI card, you may need to remove termination depending on where you are putting the new drive in a chain, and if all this fails, you may need to check to see if you plugged it in.

Seriously, this is, step by step, what I went through with the last Mac drive that I got.

I put an Apple II High-Speed SCSI card in Slot 7 of my ROM 01 IIGS. The drive in question was the Quantum based MacLand drive reviewed elsewhere in this issue, which I attached to the SCSI card using the supplied 25-pin to 50-pin cable.

To partition the drive, I first booted up the IIGS using the Utilities disk that came with the Apple II High-Speed SCSI card. The instructions for this begin on page 34 of your SCSI card manual and they are quite good. The whole procedure to partition and format the drive (these utilities do the format at the same time) took around 10 minutes. Then, I booted up my IIGS with a copy of my System Software v5.0.4 disk with the intention of installing System Software v5.0.4 on the first partition of the hard drive to make it a bootable device. When I started the IIGS with the System Disk, I got the message that a SCSI device is attached and it needs a SCSI driver, so it told me to install a driver and reboot. Skipping past this message, what happened is that the system finished booting, but on the Finder desktop I only saw my System Disk icon, and not the hard drive partitions I just created because, without the SCSI driver, the drive partitions cannot be recognized by the System Software. So, in goes the System Software v5.0.4 Tools disk, I launched the Installer, making sure that the disk I wanted to update was the copy (you use copies too, right?) of the System Disk, I selected "SCSI hard disk" from the list, and then clicked on install. Doing this on a fresh copy of an original System Software v5.0.4 disk, the Installer installed the driver (and deleted the Tutorial folder). I then rebooted the IIGS again using the same disk (now having the driver installed on it), and poof, the four partitions I created on the hard drive (using

the instructions contained in the Apple II High-Speed SCSI card manual) appeared.

Back in went the tools disk, I launched the Installer, selected HD.Partition.1 (the default name that the partition utility gave to that partition) as the disk to update, selected "Latest System Files" from the list, and clicked on Install. System Software v5.0.4 was then installed on the hard disk. After this first install was completed, I then installed the SCSI Driver ("SCSI hard disk") and installed the Ace Tool Set and the additional fonts. All of these items appear as choices in a dialogue box from which it is easy to make the selections as described.

The only real problem that I encountered in this whole process had to do with getting the SCSI driver on the System disk so that the partitions would appear on the desktop when I rebooted. The first time I tried to do this, I used a System Disk copy that I have made some changes to, so that the installer gave me the "not enough room" message and would not install the drivers on the disk. No problem, I figured, I deleted the **Basic.System** and **Basic.Launcher** files from the disk, installed the SCSI drivers and my partitions appeared on the desktop when I rebooted. The problem arose when I then went to install the System Software on the hard drive. The Installer could not find **Basic.System** or **Basic.Launcher**, so it refused to do the installation on the hard drive. I got around this by renaming the boot disk to **System.Disk2** and rebooting the system. I then launched the Installer, selected **HD.Partition.1** as the disk to update, selected "Latest System Files" to install, and clicked on Install. When the Installer asked for **System.Disk** I put in a clean copy that had all the files on it instead of **System.Disk2**, which wouldn't have worked anyway. With the clean disk, the Installer did the install and everything was fine.

A couple of short notes, first, do not forget to install the SCSI drivers ("SCSI hard disk") on the hard disk! Also if, like me, you put the SCSI card in Slot 7, you'll have to change the startup slot to Slot 5 to boot from the System Disk

floppy, and then back to Slot 7 or Scan after you have installed everything on the hard drive and want the system to boot from it. Also, the manual says that you should install the SCSI driver contained on the Apple II High-Speed SCSI card Utilities disk. But the one that comes with System Software v5.0.4 has a later creation date for the driver file (using "Icon Info") so I used it instead and appear to be suffering no ill effects. [The SCSI driver supplied with the Apple High-Speed SCSI card will work only with the Apple High-Speed SCSI card. The SCSI driver supplied with System Software v5.0.4 will work with both the High-Speed SCSI card and the old Apple Rev. C SCSI card. - Editor]

**The End**

And that, my friends, is the whole story, well almost the whole story. You may


have to make some SCSI ID changes if you have multiple devices attached to your SCSI card, you may have to "un-terminate" a drive if you have several drives attached to your SCSI card, and you may have to flip some switches on your SCSI card depending on how the card is set-up to handle its slot location and the number of devices attached to it. Of course, if you have to address these issues, it has nothing to do with where you bought your hard drive, and thus they are beyond the scope of this article. Adding only one drive to one card in Slot 7, I had to do nothing except plug it in and proceed as described. In any event, the Apple II High-Speed SCSI card manual is quite detailed in its explanation of these subjects should you have to face them, and I would hope that the other SCSI card manuals are equally self explanatory. As an aside, after this was over, I attached (daisychained) a

TMS Pro 105 drive to the MacLand drive, using a 50/50 pin SCSI cable, made no card or termination adjustments (except to check the SCSI IDs of the two drives to be certain they weren't set to the same number) and everything worked just fine.

The shopping is not much different than what you should do if you were looking for a drive solely from IIGS after-market retailers. The setup is only different because you have to partition the drive and format it (and remember that the Apple II High-Speed SCSI card Utilities format automatically as part of the partitioning process). So, with a minimum of extra effort, expanding your horizons when shopping for a new hard drive for your Apple IIGS can be both an educational experience, and a money saving opportunity. **GS+**

**GravenStein Apple IIGS User's Group      P.O. Box 751454      Petaluma, CA. 94975-1454**

---

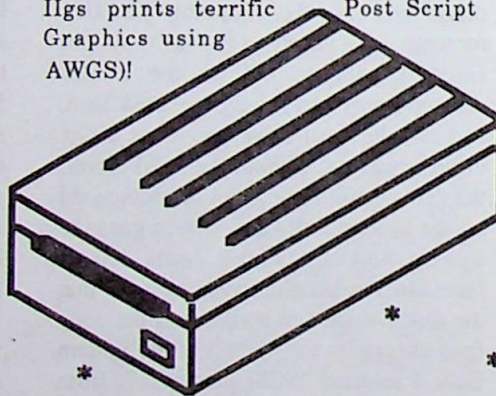
**GSAUG** 

---

**Serving the Apple IIGS User with Information & Education**

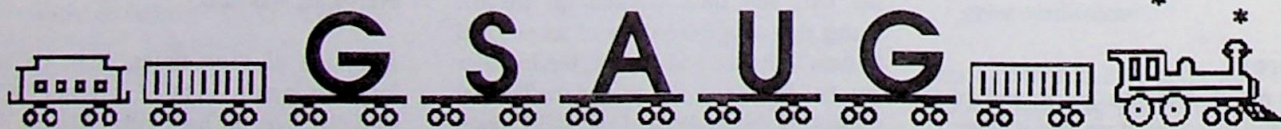
GravenStein Apple is one of the fastest growing IIGS clubs in the country, and out of the country. Members are across the United States, and around the world. With over 250 MEGs of Public Domain IIGS software, and growing, the club claims one of the largest selections of software for all members. All for only \$3.50 a disk, shipping included! The club's newsletter rivals most MAC newsletters with articles of interest for both the new and experienced IIGS user. Currently topics in the columns are on the use of AWGS, reviews,

and the use of EPS graphics. (Yes, the IIGS prints terrific Post Script Graphics using AWGS)!



**HARDWARE?** We offer OctoRam memory boards with 2 MEGS of memory for \$120.00!! Ask for a free newsletter. Using your modem, call 'Big Russ' on American Online and leave E-Mail. No modem? Call Don Forbes (voice) at 707-224-5110. Find out what your IIGS can really do!! Membership is \$25 domestic/\$35 international.

*\* This ad, graphics, and layout was done entirely on a IIGS using AWGS & a LaserWriter IIInt.*





# Cool Cursor Contest

By Steven W. Disbrow

Its been a while since we had a contest, the main reason being that we couldn't think of any good ideas for one. So when Joe put the finishing touches on his Cool Cursor Control Panel, it was like this really great contest was staring us right in the face! After all, anyone with access to a resource editor (Genesys), resource compiler (REZ) or other resource creation utility (Design Master) can make a cool cursor . . . and you don't really need any artistic talent at all! (The cursors that we have included with Cool Cursor prove this: Joe drew every one of them, and he's the first to admit that he can't draw a crooked stick.)

So, here's the deal: go back and read the "Cool Cursor" article in this issue, and take a look at the cursors we've given you on disk, and then come up with your own cool cursor. Draw it, test it, and then send

it in to us. If your cursor is the *coolest* we'll publish it in a future issue of *GS+* Magazine and extend your subscription for three issues and give you a free *GS+* T-Shirt! If your cursor is second coolest, we'll extend your subscription two issues and give you a *GS+* T-Shirt. If your cursor is third coolest, we'll extend your subscription for one issue and give you a *GS+* T-Shirt. (Yes, I am trying to get rid of all these dang T-Shirts!) Of course, there are a few rules:

- 1) You *must* include both a 640 mode and 320 mode version of your cursor to be eligible to win a prize.
- 2) Be sure to include your T-Shirt size and a phone number or electronic mail address that we can contact you at. It would also be helpful if you included your Customer Number (that 10

character string above your name on your mailing label.)

- 3) All entries become the property of EGO Systems (however, you will get credit whenever we use your cursor).
- 4) Pack your entry with *GS-ShrinkIt* and send it to one of the electronic mailboxes shown on the magazine's title page or send your entries on 3.5-inch disk to:  
C.C.C.P. Contest  
c/o *GS+* Magazine  
P. O. Box 15366  
Chattanooga, TN 37415-0366

And, as always, an unofficial rule is that naughty entries probably won't win, but we would love to see them anyway!

Good Luck!

*GS+*

---

## Warranty Disclaimer And Copyrights

EGO SYSTEMS' LICENSOR(S) MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, REGARDING THE SOFTWARE. EGO SYSTEMS' LICENSOR(S) DOES NOT WARRANT, GUARANTEE OR MAKE ANY REPRESENTATIONS REGARDING THE USE OR THE RESULTS OF THE USE OF THE SOFTWARE IN TERMS OF ITS CORRECTNESS, ACCURACY, RELIABILITY, CURRENTNESS OR OTHERWISE. THE ENTIRE RISK AS TO THE RESULTS AND PERFORMANCE OF THE SOFTWARE IS ASSUMED BY YOU. THE EXCLUSION OF IMPLIED WARRANTIES IS NOT PERMITTED BY SOME STATES. THE ABOVE EXCLUSION MAY NOT APPLY TO YOU.

IN NO EVENT WILL EGO SYSTEMS' LICENSOR(S), AND THEIR DIRECTORS, OFFICERS, EMPLOYEES OR AGENTS (COLLECTIVELY EGO SYSTEMS' LICENSOR) BE LIABLE TO YOU FOR ANY CONSEQUENTIAL, INCIDENTAL OR INDIRECT DAMAGES (INCLUDING DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION, AND THE LIKE) ARISING OUT OF THE USE OR INABILITY TO USE THE SOFTWARE EVEN IF EGO SYSTEMS' LICENSOR HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. BECAUSE SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU. EGO Systems' Licensor's liability to you for actual damages from any cause whatsoever, and regardless of the form of the action (whether in contract, tort (including negligence), product liability or otherwise), will be limited to \$50.

And furthermore,

Some of the programs on this *GS+* Disk contain materials from the ORCA/C and ORCA/Pascal Run-Time Libraries, copyright 1987-1989 by Byte Works, Inc. Used with permission.

# Buying Ad Space In GS+ Magazine

- 1/3 page - \$60
- 1/2 page - \$90
- 2/3 page - \$120
- 1 page - \$150
- 2 pages - \$250

If you want your ad to appear on the back cover or inside back cover, add an additional \$100. Call for cover reservations.

Spot color is available for an additional \$15 per page. Call for details.

Save an additional 20% by placing the same size ad in more than one issue!

Prices good through March 15, 1992.

Request your ad space today to guarantee these low prices!

## DEADLINES:

March-April 1991 (Volume 3, Number 4) March 15, 1992

May-June 1991 (Volume 3, Number 5) May 15, 1992

All ads must be camera-ready copy. Payment must accompany ad. Make checks payable to EGO Systems, or call us to charge it on your credit card. For more information contact:

GS+ Magazine  
c/o EGO Systems  
P.O. Box 15366  
Chattanooga, TN 37415-0366  
Voice phone: (615) 843-3988

If you need to ship your ad to us using a service other than the U.S. Postal Service, please call to make arrangements.  
If you wish to place an ad for a product we have not reviewed, we request that you include a review copy with your ad.

## GS+ Ordering Information

GS+ is published bimonthly and sold for \$3.00 an issue for the magazine only, and \$8.00 an issue for the magazine + disk. But, if you sign up for a 1-year subscription (six issues) or a 1/2-year subscription (three issues), you can save 11-25%! To sign up, send this completed form (or a photocopy) along with a check or money order (payable to EGO Systems), or your credit card number, to: GS+ Subscription Services, c/o EGO Systems, P.O. Box 15366, Chattanooga, TN 37415-0366.

Name: \_\_\_\_\_ Phone: (     ) \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

### Please item you wish to order:

- 1-yr subscription (mag + disk) - \$36
- 1/2-yr subscription (mag + disk) - \$20
- 1-yr subscription (mag only) - \$15
- 1/2-yr subscription (mag only) - \$8
- Sample issue (mag + disk) - \$8
- Sample issue (mag only) - \$3

### Please delivery method:

- Third Class to U.S. - free
- First Class to U.S., or  
Canada/Mexico, or Foreign  
surface - \$1.50 per issue
- Foreign Air Mail - \$5 per  
issue

### Please payment method:

- Check or money order enclosed
  - Bill my MasterCard
  - Bill my VISA
- Card #: \_\_\_\_\_
- Expiration Date: \_\_\_\_/\_\_\_\_
- Signature: \_\_\_\_\_

If you prefer to use your credit card to order by phone, give us a call at 1-800-662-3634, Monday through Friday, between 9 a.m. and 6 p.m. Eastern Time. All subscriptions will start with the next issue published. Please allow 2-8 weeks for delivery of first issue (except for First-Class Delivery). Tennessee residents add 7.25% sales tax. Please remember to indicate delivery method and include additional charge if indicated.

## TMS Peripherals Pages 12 and 13

What can I possibly say about TMS Peripherals that I haven't said before? This is one of the few mail-order companies that takes the IIGS seriously. (They won't even laugh at you when you say the words "I need a hard drive for my IIGS.") Not only that, but they constantly get high marks on our Feedback forms. So, if you are in the market for IIGS hardware, I give TMS my highest recommendation.

## Parkhurst Micro Products Page 22

Several years ago, I gave up calling Bulletin Board Systems. One of the reasons was that, suddenly, every board I called was one of those stupid IBM "ANSI" graphics boards. Even worse, none of my Apple II communications software could take advantage of all the neat graphics. Well, after years of waiting, someone has finally come out with an ANSI compatible terminal program for the IIGS, and, let me tell you, it's pretty slick. Finally, I could call up one of those silly PC boards and see all of the nifty graphics and colors. Unfortunately, I had to give the package to our reviewer (who shall remain nameless so he can make sneaky tech-support calls) so I didn't get to work with it that much. However, what I did see was a very nice piece of work. If you need to access ANSI graphics BBSs from your IIGS, you should give Parkhurst Micro a call.

## Big Red Computer Club Page 27

Ever since we started asking folks to tell us who we should try to get as advertisers, people have been saying "Big Red." Well here they are! Personally, I have never ordered from them, so I can not really comment on their service. However, I have *never* seen a complaint about them on any of our Feedback forms (or anywhere else for that matter) and seven out of ten people that do suggest advertisers to us have suggested Big Red. As for the products themselves, Big Red

has spent the last few months taking over the distribution of some of the best IIGS titles ever, while drastically cutting the prices. How can you beat that?

## Raptor, Inc. Page 33

The products advertised here are *image enhancement programs* for your black-and-white 320 mode graphics. It should be noted that these programs are not for the timid. The last reviewer I gave them to sent them back to me with a note saying, "Way over my head!" Still, not everyone needs the kind of power that these programs offer. So, until I can find a reviewer that can handle it, I'll just repeat myself and say, "If you need the ability to perform the same kind of processing that NASA does on satellite photos, give the folks at Raptor a buzz—there simply isn't any other product like this for the IIGS."

## App-L-Jack Page 35

Hmmm, I really don't know what to say about this one. On the one hand, it looks like, well, a *silly* product. On the other hand, the folks at App-L-Jack have told me what a neat product it is, and, looking at the drawing, I can think of a few other uses for it besides ejecting disks. However, the review units we were promised have not yet arrived so I can't give a really concrete opinion (I hate to give an opinion or make a snide comment without having at least *touched* a product). The America Online software is a nice bonus, but I just don't know about the rest of the deal. I can tell you this though, I'll sell you a paper clip for \$2.00.

## Triad Venture Page 36

Way back in *GS+* V1.N2, we reviewed one of the earliest versions of Graphic Disk Labeler. The reviewer, Wayne Packard, really liked the program, but found a few problems. In the two years that have passed, Triad has updated the program (fixing all of the problems Wayne found during his review) a couple

of times and shown their commitment to the IIGS market. One sign of that commitment was the release of the HyperStuff collection which we reviewed in *GS+* V2.N5. Triad Venture is in the IIGS market for the long haul, and these are good products, give 'em a try. (If you want an example of the kind of work that Triad Venture does, check out the HyperStudio v3.0 extra, "Instant Icon.")

## DreamWorld Software Page 42

Yes! DreamGrafix really *is* here! Shortly before we went to press, we finally received our review copy of DreamGrafix. Since we were right in the middle of our deadline crunch, I didn't have much of a chance to play with the program, but what I saw was amazing to say the least! However, I should also say that this is not the most intuitive program in the world. But I guess that's why they ship a 100+ page manual with it. I hope to have a full review of the program for you by next issue. In the mean time, give DreamWorld a call for more information.

## GravenStein User Group Page 46

What's this? An ad for a *user group*? Sure, why not? Even if you don't live in the greater Petaluma area, you owe it to yourself to contact the folks at the GravenStein User Group. If you represent a user group, you should definitely begin exchanging newsletters with GravenStein. They have one of the best newsletters that I have seen (and I've seen quite a few newsletters) and the discounts that they offer their members on hardware are nothing to sneeze at.

## Econ Technologies Back Cover

Econ is a new player in the IIGS internal hard drive market. At this point, I have not had any first hand experience with the Econ drive, so I can not make a recommendation one way or the other. I hope to have a review unit soon, and we should have an actual review in the next issue.

**GS+**

GS+ Magazine  
P. O. Box 15366  
Chattanooga TN, 37415-0366

100CHE205W LAST ISSUE: V3.N4  
DONALD COHEN  
205 W 95 ST #3E  
NEW YORK NY 10025

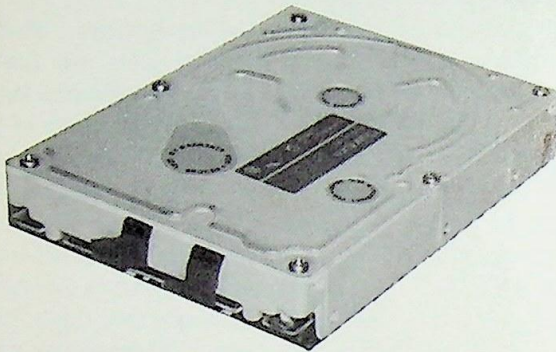
BULK RATE  
U.S. POSTAGE  
PAID  
Chattanooga, TN  
PERMIT NO. 616

S

# Pegasus Performance

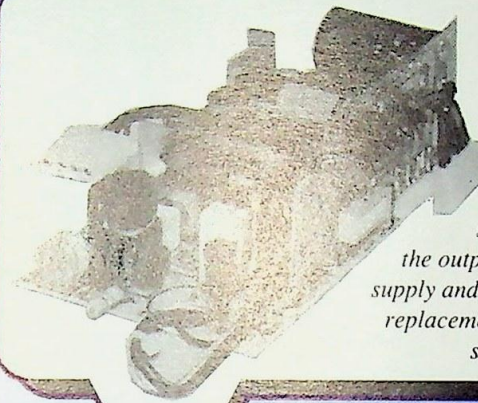
## Anatomy of a thoroughbred...

### Quantum Equipped



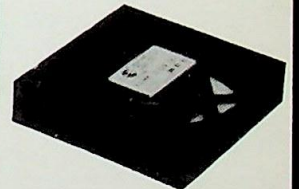
Why settle for anything less? Proven to be the fastest, most reliable SCSI 3.5" mechanism available! Supports transfer rates in excess of 2 MB per second!

### 80 Watts Strong



Our custom power supply delivers twice the output of the stock Apple supply and is stronger than any replacement Apple IIgs power supply on the market.

### Integral Fan



Helps combat excessive heat buildup, extending your system's life!

50mb \$479  
100mb \$620  
200mb \$969

Prices subject to change without notice.

200mb Model Shown



### Software & More Software

No other Apple II hard drive manufacturer has the programming resources that we do. This is why you'll find the best, most useful, custom developed software free on every Pegasus drive. This includes Universe Master™, a complete drive management package worth \$149! Of course the standard 10+mb of GS specific shareware & freeware is also included.

### It all adds up to value!

Other companies will sell you a hard drive... but thats all you get - a hard drive! Only Econ has engineered a complete hard drive solution giving you an unbeatable mechanism, an ultra strong power supply, an integral cooling fan and complete drive management/backup software. Purchase these components elsewhere and you'll spend as much as \$200 more. And you still won't have the simple, elegant solution that an internal drive has to offer. So when you're ready to expand your mass storage, think about the complete hard drive solution that flies above the rest...

**ECON**  
TECHNOLOGIES

P.O. Box 195356  
Winter Springs, FL - 32719  
(407) 365 - 4209  
9 am - 6 pm EST Mon-Fri